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Textile World

NOVEMBER, 1955

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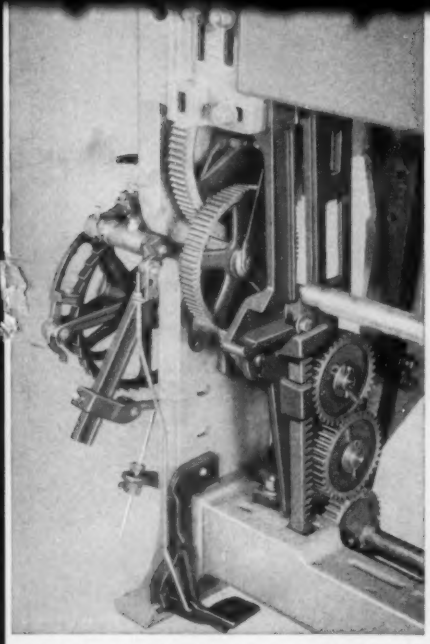

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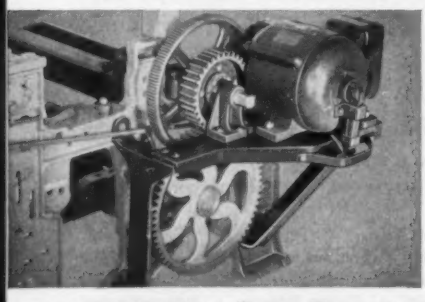

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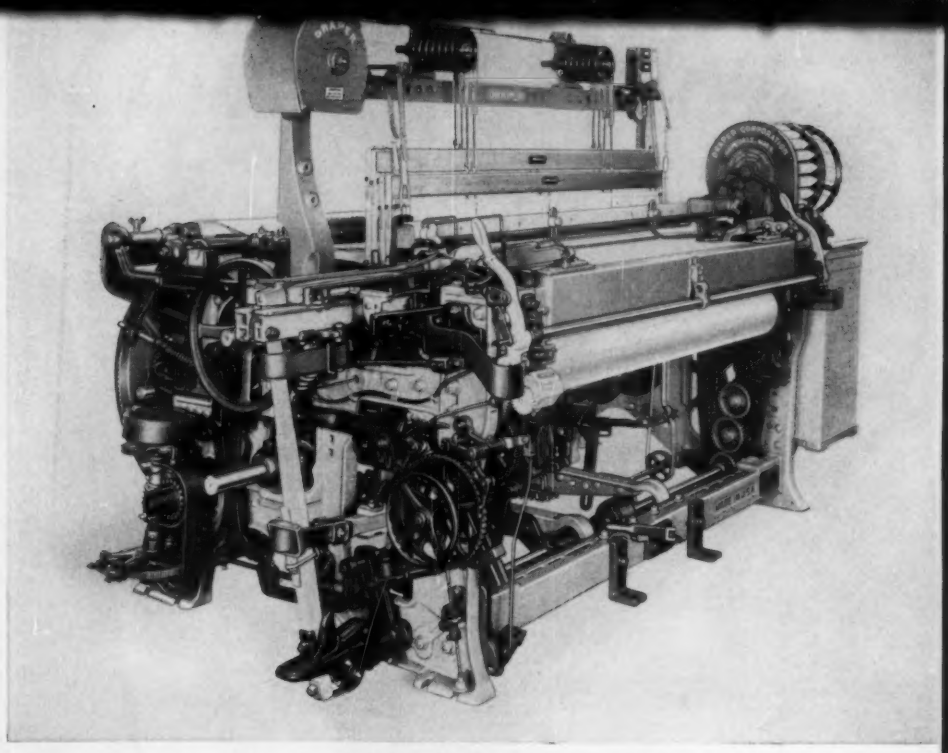

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NEWS of the MONTH

New Synthetic Fiber

Darlan, a dinitrile fiber that has been under development by B. F. Goodrich Chemical Co. for several years [Synthetic-Fiber Table, TW, Sept., '55, p. 83], is now in pilot-plant production at Avon Lake, Ohio.

First use of the fiber will be in women's pile coats that will be in stores this winter. The company says it can also be used for suitings and other apparel fabrics and for sweaters and other knit goods.

Bulganin Demands

Premier Nikolai Bulganin, in a speech reported by the official Russian newspaper, *Izvestia*, recently demanded that cotton-textile manufacturers increase their efficiency. Labor productivity is increasing very slowly in this branch of Soviet industry, the premier declared.

Bulganin said that labor productivity in weaving was up only 15% over 1940. "Primarily, this low production is caused by technical backwardness. Only 36% of our looms are automatic, compared with almost 100% in the United States. Our output per worker is considerably below that of the United States, although we are ahead of England, Italy, Czechoslovakia, and Poland."

Japan and GATT

The Japanese Foreign Ministry has announced that 14 countries have invoked the escape clause of the General Agreement on Tariffs and Trade against Japan, who became a full member Sept. 10. The clause allows these countries to refuse Japan "most-favored-nation" treatment.

The 14 countries are Australia, Austria, Belgium, Brazil, Cuba, France, Haiti, India, Luxembourg, Holland, New Zealand, Rhodesia, South Africa, and The United Kingdom.

Japan will not immediately retaliate against the countries invoking Article 35, according to official sources.

Swiss Tariffs Up

Duties on American hosiery entering Switzerland have increased 300% in the last two years. The value of U. S. exports of women's nylon hosiery to Switzerland, which formerly averaged over $8-million per year, has dropped 50% and soon may be eliminated completely.

The National Association of Hosiery Manufacturers has stated that Switzerland's tariff policy should be a deciding factor in any benefits sought for Swiss products in the U. S. A.

Watch Your Waste

Dealers in cotton rags and cuttings are uniting in an all-out effort to alert cotton manufacturers to the dangers of contamination of these materials by renewing the campaign of the quality-control program sponsored by the Cotton Rag Council of the National Association of Waste Material Dealers, Inc.

The first in a series of direct-mail letters to cotton manufacturers lists the most-common contaminants and points out that every time a contaminant gets into cotton rags and cuttings, the mills lose money and endanger the outlet for their waste.

Contaminants include masking and latex-backed tapes, melamine and other resin-treated materials, rubber bands, floor sweepings, nylon stitchings, metal items, wood splinters, vat-dyed materials, and synthetic cuttings.

Dutch Buy U. S. Machinery

J. F. Scholten & Zonen, N. V., the first mill in The Netherlands to be completely equipped with American machinery, is now under construction. The new plant will spin combed yarns.

W. A. Thomason, Jr., president, Thomason Textile Services, Inc., Charlotte, N. C., and a former member of TEXTILE WORLD's editorial staff, is engineering and supervising the installation and erection of the machinery, which was sold by Hall's Textile Machinery Co., Charlotte.

The equipment, shipped from Wilmington, N. C., is the first movement of textile machinery through the state port.

Mill Developments

▶ Stockings with greater resistance to runs are now being made by Burlington Hosiery Co. Two threads are used in each knitted loop instead of the usual one. If one thread is snagged, it can be removed and the remaining thread will hold fast.

▶ A new stretch yarn, made without the application of heat, has been announced by Alamance Industries, Inc., Burlington, N. C. The method is used on 10- and 15-den. monofilament nylon yarns.

▶ Nonwoven Viscon is now being used as a bow-tie interlining, according to Visking Corp. The ties interlined with Viscon are said to keep their shape and stiffness longer than ties interlined with woven fabrics.

CONTINUED ON PAGE 6

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M-BRIDE

▶ The first finishing plant to adopt the 122 standards of the American

Advertiser's Index 207

E How To Protect FLUORESCENT TUBES 172 C S W

FOR SEAMLESS DUNN SYSTEM FINISHING

Mauney Hosiery Mills, Inc., Kings Mountain, N. C., uses Turbo Machines with double sock forms to almost double their production . . . cut costs.

Board with Turbo Forms in a Turbo Machine

Having trouble with combination finishing of seamless hosiery after dyeing? Then, you need the Turbo ADS-48 four-cycles — preheating, air expulsion, steaming and drying.

Want extra production of stretch-yarn socks? Then, you need the Turbo with double or triple sock forms.

With Turbo Machines there's controlled timing, controlled temperatures, controlled condensation, preheating and drying . . . four time cycles. You end up with sales-appealing merchandise plus savings in steam and labor. Whether it's fiber, yarn, socks, stockings, piece goods or finished garments, there's a Turbo Machine to give you better setting and finishing.

Complete your production team with Turbo forms. All are made from one-piece, solid aluminum, beautifully polished. Edges are as smooth as a wet seal. Garments slip off and on without a snag or pull.

Write, wire or phone for additional information about the *complete* Turbo line — forms that help speed production, machines that "set for life".

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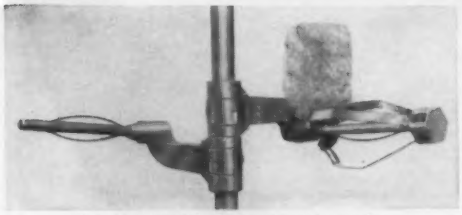
TURBO MACHINE COMPANY
LANSDALE, PENNA., U.S.A.

Southern Representative: F. W. Warrington Co., Charlotte, N. C.
"Builders of Precision Machines for a Quarter Century"

McBRIDE CREEL CORNER

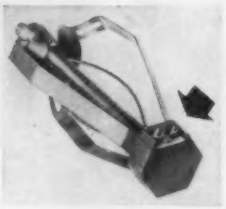
FLEXIBILITY IN HANDLING PACKAGES

VERSATILITY WITH WIDE RANGE OF PACKAGE STYLES

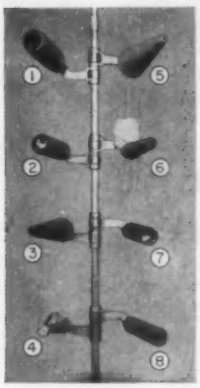


Patented McBride Swing Arm Assembly.

The Bowed Spring Spindle is tilted upward to a 5° angle to prevent packages from working loose. Arm swings out for package change, snaps back in running position into an indented, hardened steel collar by means of an internally contained ball type spring lock. Sheepskin pad (optional) mounted on swinging arm behind cone holder presses against back of cone (rayon, silk, nylon, etc.) and prevents yarn from dropping behind package.

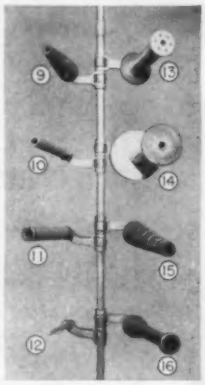


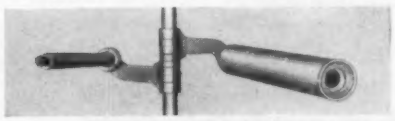
Quik-Change Cone Holder rotates to facilitate tying of transfer tails. Completely rustproof, of sturdy construction, it greatly reduces changeover time from cones to tubes — of vital importance in creels of large capacity. No set screws. Just press thumb release to remove. Snaps back on.



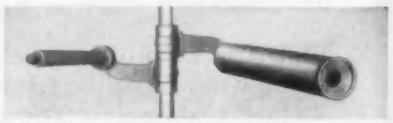
♦ QUIK-CHANGE CONE HOLDER mounted on Bowed Spring Spindle accommodates many packages including: 1. Large diameter metal dye tube; 2. Headless package; 3. Perforated cone; 4. Quik-Change Cone Holder; 5. Cotton cone; 6. Rayon cone; 7. Large diameter fiber dye tube; 8. Large diameter parallel shipping package.

BOWED SPRING SPINDLE ♦ with Quik-Change Cone Holder removed accommodates many packages including: 9. Wooden cone; 10. Fiber shipping tube; 11. 10" nylon pirn; 12. Bowed Spring Spindle; 13. Bakelite throwing bobbin for nylon; 14. Maple throwing bobbin for rayon; 15. Wooden cone for carpet yarns; 16. Woolen twister bobbin.





DuPont 12" pirn and adapter.



Chemstrand 12" pirn and adapter.

FLEXIBILITY WITH NYLON

The Bowed Spring Spindle and Quik-Change Cone Holder will handle a wide variety of packages—few adapters are needed with McBride equipment but they are available to meet special problems.

Mills warping nylon often must change from DuPont pirn to Chemstrand pirn and back. This hard maple pirn holder will accommodate both, eliminating the time needed to mount a special adapter for either pirn.

LET McBRIDE STUDY YOUR WARPING SITUATION. YOU MIGHT BE SURPRISED WITH THE COSTS YOU CAN SAVE, THE IMPROVED QUALITY IN THE WARPS YOU PRODUCE.

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For more information, write direct or use Reader-Service post card.

► The first finishing plant to adopt the 122 standards of the American Standards Association is Bishopville Finishing Div., Reeves Bros., Inc. The standards cover tensile strength, colorfastness, atmospheric fading, washfastness, and cleanability.

► Nonwoven fabrics used as backings for vinyl upholstery are being consumed in increasing quantities by the automobile industry, according to Chemical Div., Goodyear Tire & Rubber Co.

Fiber News

► Cotton and chemistry can combine to produce vastly improved tents, awnings, tarpaulins, and other outdoor fabrics, according to N. Norbert Berard, of the Southern Regional Research Laboratory, New Orleans, La. Speaking at the Fourth Annual Chemical-Finishing Conference of the National Cotton Council, Mr. Berard described a process, still in the experimental stage, which he said would triple the useful life of these fabrics.

► The U. S. Dept. of Agriculture has announced a plan for marketing on a competitive-bid basis the remaining wool owned by the Commodity Credit Corp. The competitive-bid plan went into effect November 1.

► A tremendous increase in the production and export of synthetic fibers by 1960 is predicted by the Japanese Ministry of International Trade. Production is expected to be 230-million lbs., compared with 31.6-million lbs. in 1954; export goal is 25-million lbs., compared with 3.3-million last year.

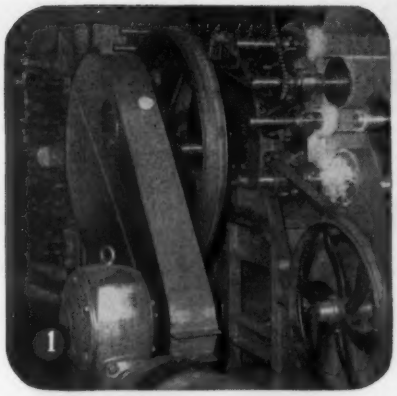
► Results of fiber and spinning tests of some of the earlier-harvested cotton by selected cotton-improvement groups were presented in an initial report issued in August by the U. S. Dept. of Agriculture. A supplement is now available that contains results for cottons harvested and tested since publication of the earlier report.

► American Enka Corp. has introduced 11 new colors specifically designed for the homefurnishings field in its line of Jetspun solution-dyed filament-rayon yarns. Styled by Howard Ketcham, noted color authority, the yarns are the first colorfast filament-viscose yarns to be engineered for this field.

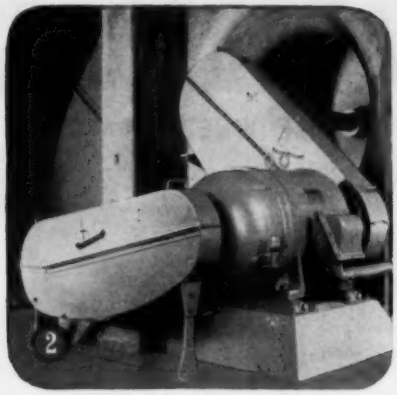
► The U. S. Dept. of Agriculture has announced that research on methods to improve the resilience of cotton-pile yarns in soft floor coverings will

COLOR THAT SELLS

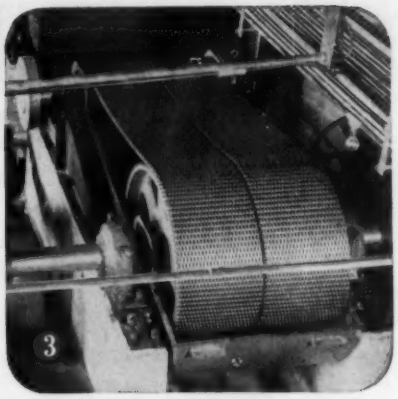
be conducted for the Agricultural Re-



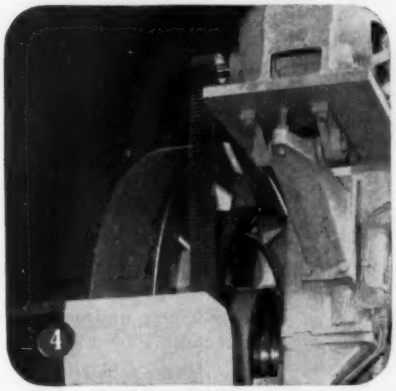
1 ADVERSE OPERATING CONDITIONS. Humidity, heat, cold do not lower Link-Belt Silent Chain's better-than-98% efficiency.



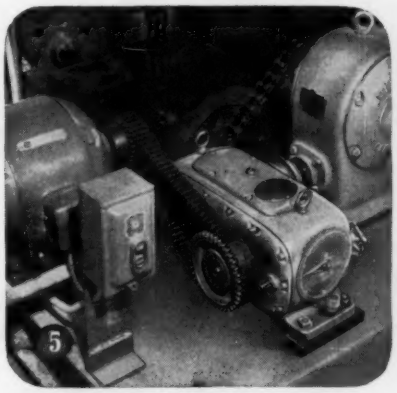
2 UNFAILING SAFETY. Dependability assures continued production. On above tunnel ventilators, Link-Belt drives protect human life.



3 LARGE OR SMALL HP. A versatile line, Link-Belt Silent Chain drives are available from fractional to thousands of horsepower.



4 LARGE RATIOS. Link-Belt Silent Chain operates efficiently on extremely short centers at ratios as high as 10-to-1.



5 LIMITED SPACE. Easy to assemble in close quarters, Link-Belt Silent Chain permits built-in drives, compact housings.

6 HIGH SPEED. After 13 years on this newspaper press at speeds up to 4700 fpm, Silent Chain is still efficient.

Big reasons why LINK-BELT Silent Chain
is specified for so many drives:

WHEN using a Link-Belt Silent Chain Drive, you can look forward to better-than-98% efficiency throughout its long operating life. What's more, silent chain offers the sureness of positive tooth-to-tooth action plus the flexibility of a belt. As for economy, silent chain is often lower in cost than other drives far less efficient.

Find out for yourself why so many of today's demanding drives incorporate Link-Belt Silent Chain. Ask your nearest Link-Belt office or distributor for Book 2425, containing complete information.

LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

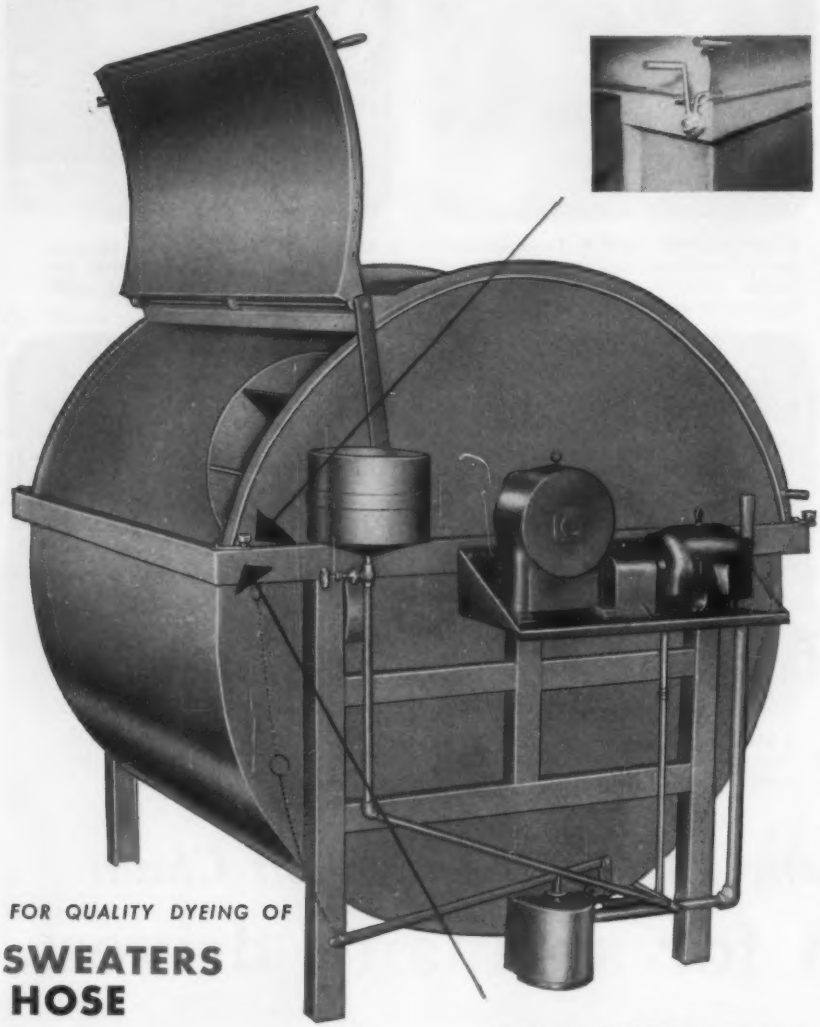
Here's why LINK-BELT Silent Chain offers you more drive per dollar

- Lower cost—often lower in first cost, always lower in ultimate cost.
- Longer life—trouble-free performance for 20 to 30 years is common.
- No dismantling machine or removing sheaves for repairs.
- Better than 98% efficiency.
- Maintained ratio assures full productive capacity.
- Slipless action assures a better product.
- Easy to install.
- Safe to employees—operates in oil-retaining casing.

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 13,710

COLOR THAT SELLS

FROM DEPENDABLE *KWG* PADDLE WHEEL MACHINES



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be conducted for the Agricultural Research Service by the Southern Research Institute, Birmingham, Ala.

Letters From Readers

What's on your mind?

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 330 W. 42nd St., New York 36, N. Y.

A SUPERVISOR SAYS "AMEN"

Dear Editor:

I wish to take this means to personally thank you for your editorial "The Supervisor in the Middle" in the Sept. issue of TEXTILE WORLD.

As you have already guessed, I am a supervisor; but I believe that you have done a great service to the textile industry, management, the supervisor, and also the worker. And at the risk of sounding a bit dramatic, I feel that what you have written will reduce a lot of human misery—temporarily, at least.

R.A.C.

Columbus, Ga.

WANT A PENFRIEND IN INDIA?

Dear Editor:

I am a textile technician from India keen on having a penfriend in the United States.

We technicians over here often meet and discuss in general about the problems in the mill. Recently I heard a lecture by Mr. Rajaram, who

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visited the U. S. and saw the working

ROBERTS HIGH DRAFT SPINNING

Simplest . . Most Effective

Least Expensive

This "exploded" view of the Roberts High Draft System highlights the small number of parts in the most successful drafting system in the world today. Leading mills using 2,000,000 spindles of Roberts High Draft get higher break factors, lower ends down, better yarn evenness and greater consistency of performance. Because of its simplicity, it has a lower first cost and lowest maintenance.

It is a true double-apron system, simple and uncluttered with all variable elements omitted. It has no bearing gadgets, pendulum systems, springs, pivots or other elements to vary from spindle to spindle or month to month. It features the narrowest possible cradle, apron and cot consistent with the gauge, providing maximum cleaning space between elements and most effective weight distribution. Top roll settings are positively set and maintained by the No-Oil cap bar and the No-Oil saddle provides proper and unchanging weight to the rolls. Top roll and bottom roll lubrication is reduced and eliminated. Not shown but an integral part of the Roberts High Draft System is strengthened draft gearing using hardened gears and studs plus an increase in the head-end roll neck diameters.

2,000,000 SPINDLES are now equipped with ROBERTS HIGH DRAFT

Roberts Spinning Frame Modernizations include Streamliner creels for larger packages, ball bearing cylinders and tape tension pulleys, increased traverse on bobbin, roller bearing spindles, rings and ring holders, motors and drives, and all accessories. Spinning frames are also available in all gauges.

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ROBERTS COMPANY
Sanford, North Carolina, U. S. A.

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for better protection, better economy, better buyer-acceptance...

EASY AUTOMATIC OPERATION

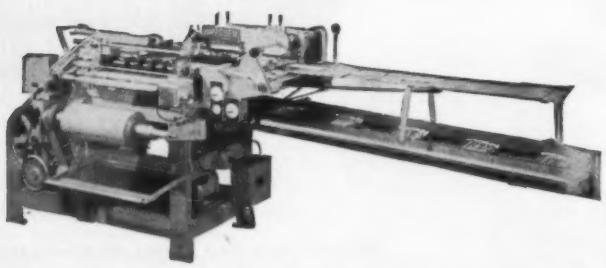
Regardless of size or shape, you get a neat, tight, perfect-register wrap on every package with a Hayssen automatic wrapping machine. Also, production men report savings up to 80% over previous wrapping costs.

FASTER, SIMPLE TO CHANGE SIZE

No complicated adjustments from size-to-size on a Hayssen. No gears or sprockets to remove or change... no need for expensive mechanics to change size, either. So simple the operator does it on the job.

COSTS LESS, DURABLY BUILT

Hayssen's simple, rugged design, using fewer moving parts, keeps these machines working and saving through years of dependable, trouble-free service. Both the cost of the machine and the maintenance are so low you won't believe it.



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visited the U. S. and saw the working of many mills over there. I myself would like to have a penfriend so that we can pass on ideas, information, and, last but not the least, knowledge.

I am 28 and a graduate in textile technology of Bombay University. Weaving was my special paper for graduation. I am working over here at Ahmedabad in Arvind Mills, which manufactures Sanforized poplins, voiles, lawns, handkerchiefs, lenoes, etc., all of cotton.

I am also holding the post of T.W.I. training officer in the same mills. I have instructed several groups of departmental assistants and chargehands in job methods, job instructions, and job relations.

I will be very much pleased if some young textile technicians in the States will write to me so that we can exchange ideas.

N. P. Badue

Raipur Mill Blocks
Saraspur, Ahmedabad
India

DEVELOPING JUDGMENT

Dear Editor:

Mill management wants foremen to be quick-thinking, able to arrive at independent decisions, and ready to react constructively to new situations as they arise. But management also likes for the same foremen to handle matters very much as the top executives themselves would if they could be present at all times and in all places.

It's a large order, isn't it? Without proper preparation, it places an unnecessarily heavy strain on the mill's supervisors.

When a foreman makes a mistake in judgment, he should be asked to reconstruct the steps by which he reached his decision. Then management has an opportunity to point out faulty reasoning and correct it. The next time a similar set of circumstances occur, the foreman retains his initiative in taking care of the problem but his decision will be more nearly in line with that of his superiors.

Sometimes in the process of training the foreman's reasoning powers, his superiors may find that his methods have been sound in some cases where management questioned the end result. Then management should be willing to demonstrate its greatest asset: flexibility. By doing so, it strengthens its own standing while increasing the respect it commands from its foremen.

George M. Dodson

Harrisburg, Pa.

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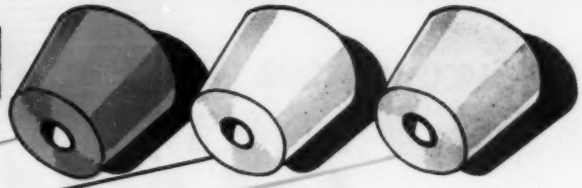

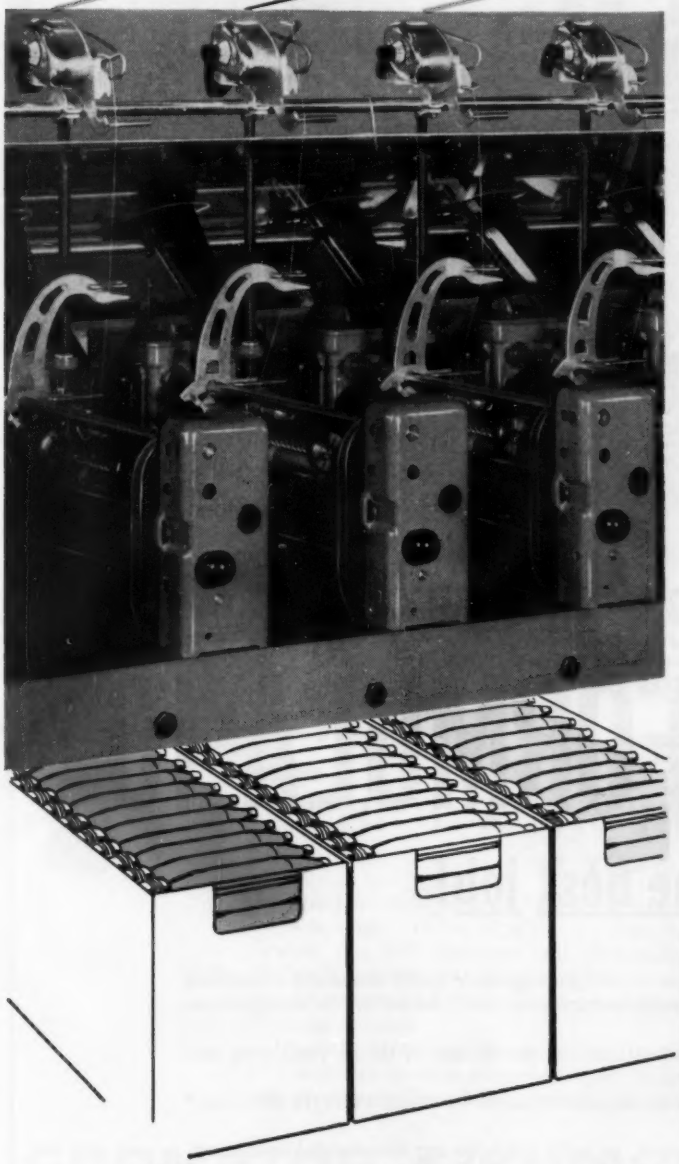

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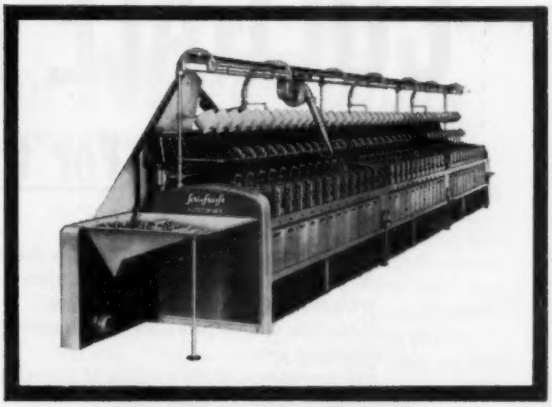
Only with the AUTOSCOPER in your quiller room can you follow the market trends at maximum efficiency, and lowest possible costs.

Write today to The Terrell Machine Co., Charlotte, N. C. for booklets explaining the outstanding features of the AUTOSCOPSER!



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COLGATE FORMULA 10

For the best job!

92% Sodium Oleate • titer on the fatty acids 10° Centigrade • easily dissolved • excellent detergent effect • mild fulling action when you want it • easily rinsed at low temperatures with no bad odor left in the fabric.

Yes, you can depend on COLGATE FORMULA 10* for dozens of textile processing and finishing jobs.

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PLAIN *and* FANCY

Some of the cast of the hit musical "Plain & Fancy", depicting life among the Amish folk of Pennsylvania. Now at the Winter Garden, New York. *At far left:* Dran Seitz as Hilda Miller. *Left, above:* Top star Shirl Conway does double kitchen duty, to the dismay of (from left) Ethel Cody, Nancy Andrews, Renee Orin, Sybil Lamb. *Right above:* Sara Aman turns the show from plain to fancy touches.

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IN YOUR WEAVEROOM

As one top mill puts it: "Surface-interest fabrics, slubs, nubs, ribs . . . *plains and fancies* . . . 100 percents and all kinds of blends" . . . this complete range of fabrics can be woven on C&K's new line of Multi-Purpose Looms.

In fact, these are the only looms made which can be quickly converted right in your mill to weave either plain or fancy constructions, with equal facility. This means you're sure of a "hit production" on every run.

And that's why we keep on pointing out that M-P means not only Multi-Purpose . . . it means More Profit to any mill because this new design gives More Protection against the quickly changing winds of fashion. That's why it will pay *you* to see C&K today.

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*Reynolds Aluminum Yarn with Mylar**

puts the "Glamour Gleam" into fabrics that can be bleached, dyed, machine-washed, dry-cleaned, ironed.

Reynolds Aluminum Yarn with Mylar offers:

- increased strength over conventional type yarns
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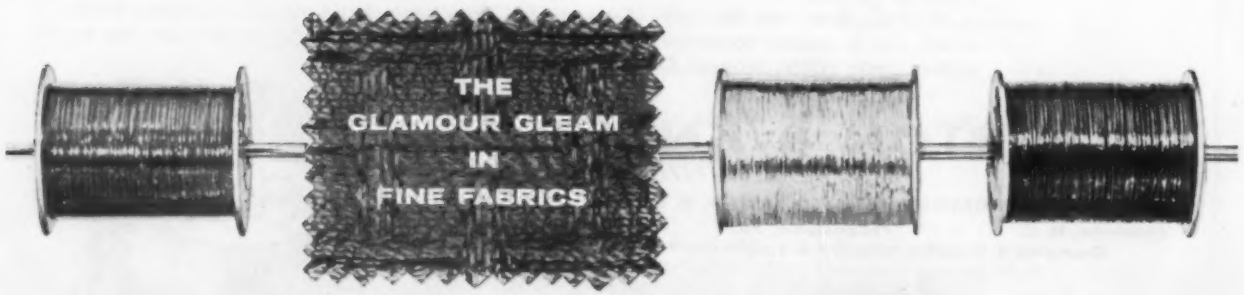
- wide range of standard as well as special colors
- slit widths down to 1/80 of an inch



Reynolds Aluminum Yarn with Mylar* available through Reynolds Sales Offices:
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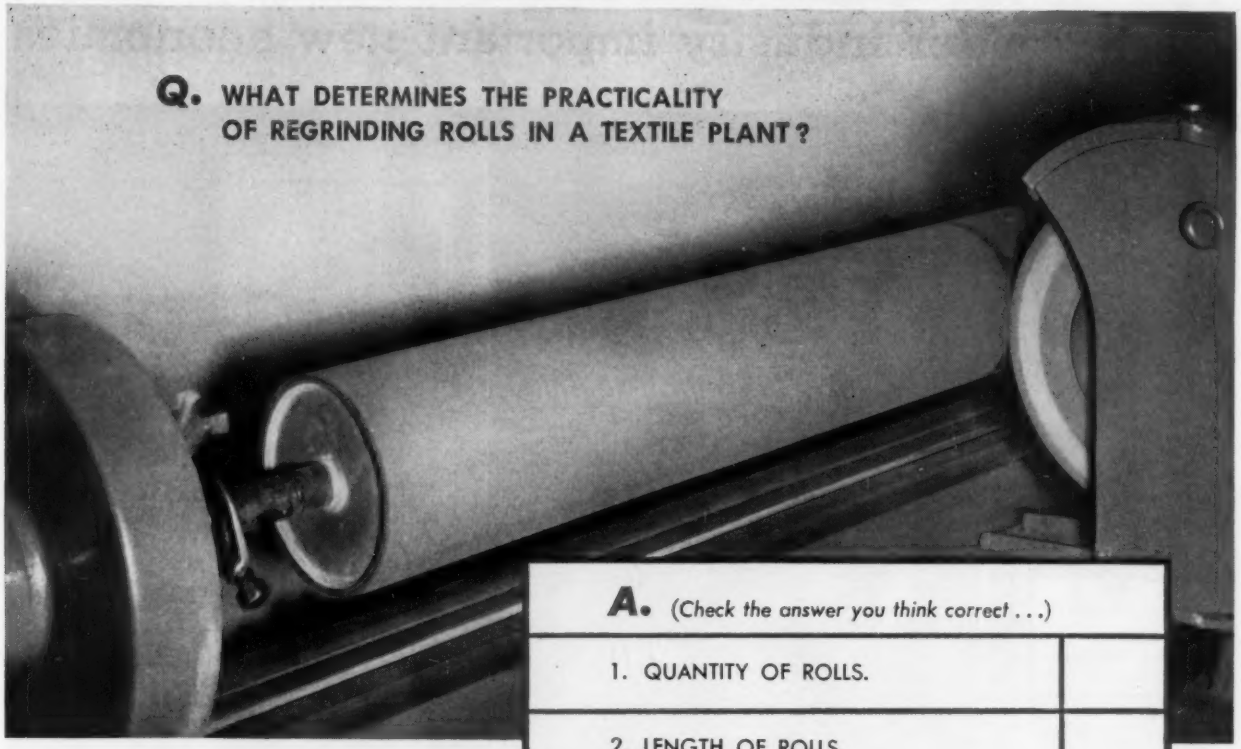
Canadian Representative: Yarntex Corporation, 6355 Park Ave., Montreal

*DuPont Trademark for its Polyester Film.

WHAT'S NEW IN MOTOR CONTROL? ★ ★ ★ GET IT FIRST IN CUTLER-HAMMER

STOWE-WOODWARD Maintenance Tips

for better finishing at lower cost



A. *(Check the answer you think correct . . .)*	
1. QUANTITY OF ROLLS.	
2. LENGTH OF ROLLS.	
3. DIAMETER OF ROLLS.	

You'll find the correct answer in these Maintenance Tips

If you checked answer number 1, you have selected the factor which probably indicates whether roll grinding should be attempted in your plant . . . for few of the rubber covered rolls used in textile finishing exceed dimensions which can be handled in a suitably equipped plant maintenance department.

Generally the answer resolves itself into the economics of whether or not the frequency of roll grinding justifies the expense of equipment and personnel involved.

Equipment necessary for roll grinding varies. Some mills have cylindrical grinders, others use a portable grinder mounted on the tool post of a lathe, and still others produce satisfactory results by revolving the roll in a lathe, and grinding with an ordinary portable belt sander.

If you would like to set up your own roll grinding operation, your Stowe-Woodward Sales Engineer will help you. He can advise you on techniques, grinding wheels — speeds and feeds, and place at your disposal knowledge gained in Stowe-Woodward's own roll grinding departments.

"RUBBER ROLLS with a REPUTATION"

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STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

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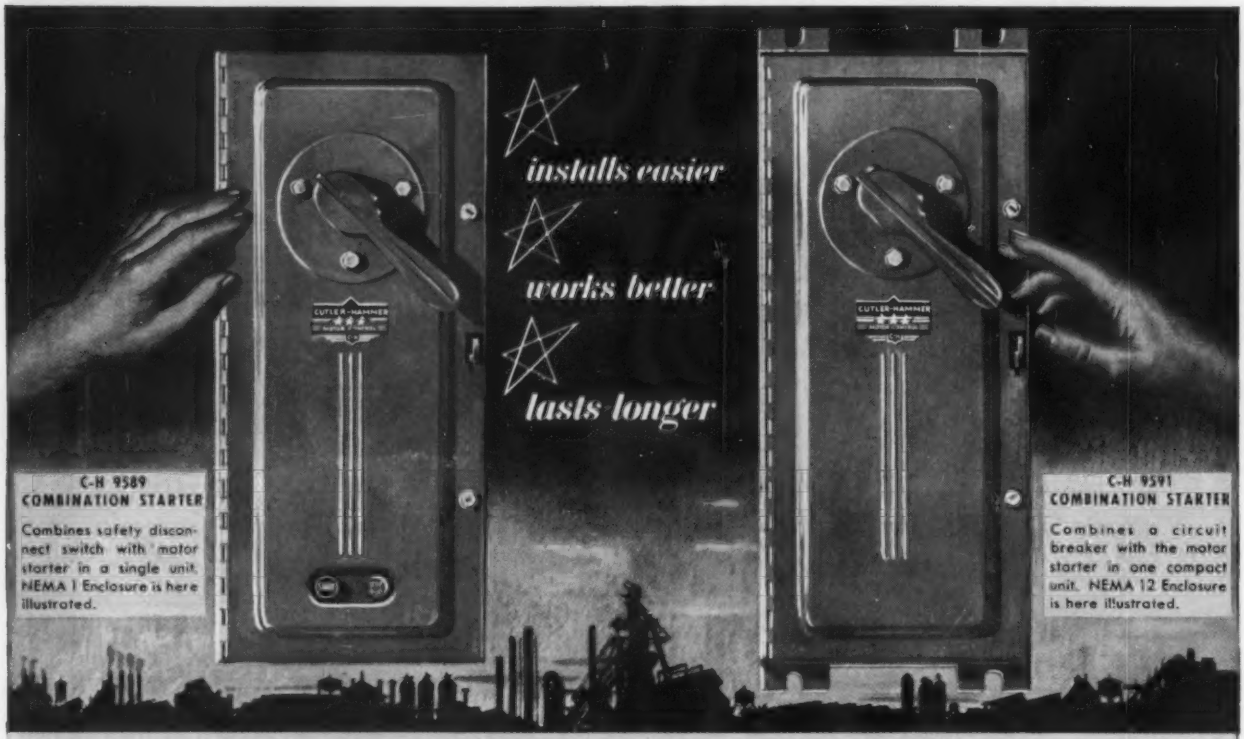
WHAT'S NEW IN MOTOR CONTROL? ★ ★ ★ GET IT FIRST IN CUTLER-HAMMER

New Cutler-Hammer Three-Star Combination Starters offer industry important new economies

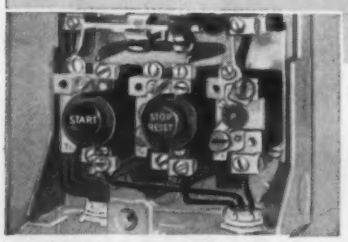

installs easier
works better
lasts longer
C-H 9589
COMBINATION STARTER
Combines safety disconnect switch with motor starter in a single unit. NEMA 1 Enclosure is here illustrated.
C-H 9591
COMBINATION STARTER
Combines a circuit breaker with the motor starter in one compact unit. NEMA 12 Enclosure is here illustrated.

Convenience and economy are basic advantages of combination starters. Users everywhere say the new Cutler-Hammer ★ ★ ★ Combination Starters bring these basic advantages to new high levels of importance. Contact life is so amazingly improved that maintenance care is *never* needed in all normal uses. Adjustable load sensing coils permit motors to work at top capacity without hazard to provide maximum production without needless work interruptions. And the widely praised Cutler-Hammer exclusive, full three-phase overload protection in standard combination starters, is optional at slight additional cost.

The three silver stars stand for three new standards

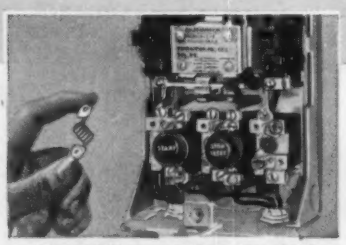
CUTLER-HAMMER
★ ★ ★
MOTOR CONTROL
C-H

Compare the performance and economies of these remarkable new Cutler-Hammer Three-Star Combination Starters with any you have ever known. Cutler-Hammer Bulletin 9589 Combination Starters incorporate rugged disconnect switches of advanced design (fused or unfused). Cutler-Hammer Bulletin 9591 Combination Starters are equipped with circuit breakers. Your nearby Cutler-Hammer Authorized Distributor is stocked and ready to serve you. Order from him today.
CUTLER-HAMMER, Inc., 1457 St. Paul Avenue, Milwaukee 1, Wisconsin.



Full Three-Phase Protection

Only *three* overload relays can give complete three-phase protection to avoid motor burn-outs and their costly interruptions to production. And *only* Cutler-Hammer offers this complete three-phase protection in standard combination starters. You pay only for the third relay, nothing extra for special engineering or special enclosures.



Adjustable Load Sensing Coils

The accurate adjustment of overload protection permits motors to work harder without damage to motor windings. This is more important than ever with the newer type small frame motors. Adjustable load sensing coils in these new starters provide 3% loading accuracy instead of the 10% to 12% accuracy in competitive control.

Superlife Vertical Contacts

Experienced control users insist on dust-safe vertical contacts. And now the famous Cutler-Hammer vertical contacts have been doubly improved. First, their new lightweight design cuts bounce to reduce arcing. Second, any arcing that might occur is now pressure-quenched. Compare performance and see the difference.

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Thousands of businessmen rely on H&D's "How To Pack It" for factual, authoritative packaging information. It illustrates and describes more than 75 basic box styles, is an excellent reference for package design. Send for your free copy today.

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THE NEW FIDELITY 400 Knits them all...

and can be changed from plain to mesh fabric in just a matter of minutes.

This "versatile genius" employs a new patented principle . . . not simply an attachment but an integral part of the machine. No wonder people are calling the Fidelity 400 the outstanding development in circular hosiery in 30 years.

Manufacturers can now make their hosiery production as flexible as changing market conditions . . . produce top quality seamfree ladies' hosiery—plain, mesh, or stretch—at the push of a button!

Write for stocking samples today. Or stop in and see the new, electronically controlled Fidelity 400 in operation at our showroom.

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for vat, sulfur, direct and developed colors

PEREGAL® ST

Peregal ST is THE assistant to use for stripping cotton or rayon yarns, piece goods, raw stock and prints.

Peregal ST forms extremely stable cation-anion complexes with dyestuffs containing sulfo or phenolate groups in aqueous solution. The bond of attraction between these dyes and Peregal ST is so strong that the affinity of the dislodged dye in the stripping bath is permanently shifted away from dyestuff-on-cellulose to dyestuff on Peregal.

In general, Peregal ST can be considered a "liquid fiber" for which dyestuffs have even greater affinity than for cotton or rayon.

Write today for complete technical data on this highly effective and economical stripping aid.

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Century

SELECTIVE SPEED MULTI-MOTOR

POWERS THE WORLD'S LARGEST

- **From creel to snaker,** 8 motors control yield as a group drive . . . constant speed maintained within ±.5% at any speed setting.

This interesting new warp mercerizer, said to be the longest and best-controlled ever built, makes use of the following Century Selective Speed Drive features:

Central Control of the Processing

The operator, through visual instruments on the remote control console, is in complete command of this huge mercerizer.

The Several Processing Operations are Synchro-Coupled

The eight individual motors, each performing a separate processing function in the mercerizer, are electrically interlocked. They will retain a fixed relation to each other.

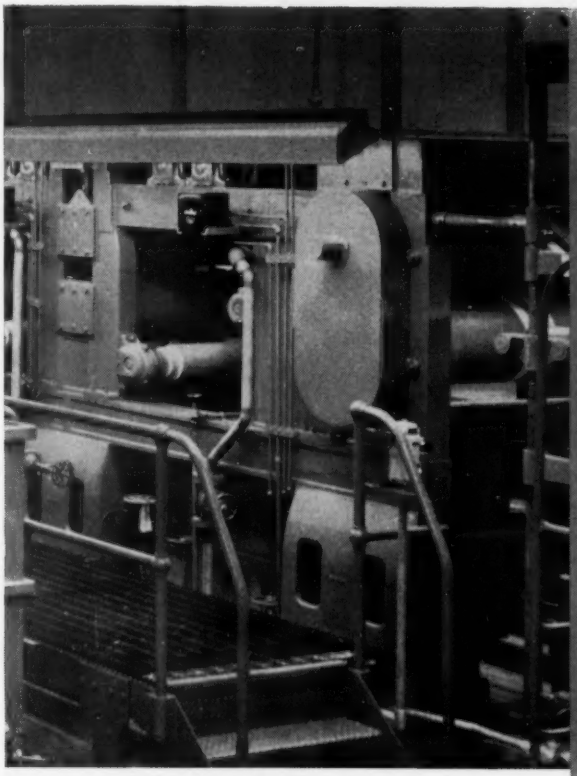
Provides Wide Range for Different Processing Speeds

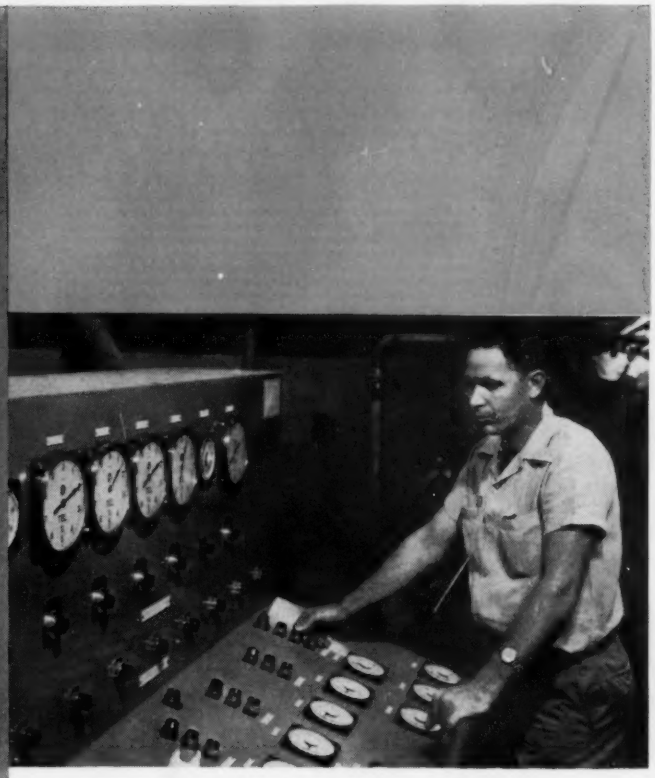
The speed may be controlled over a wide processing range. The speeds of the eight motors may be controlled as a group with a single control. Also, the speed of each individual motor may be altered to establish a positive or negative differential as compared to the lead motor. Regardless of the speed setting of each drive motor, the speed relation of the eight motors will be maintained.

Extremely Close Tolerance of the Processing Speeds

The processing of the huge volume of thread going through the mercerizer is held constant at any selected speed to a tolerance of plus or minus .03%.

To maintain this practically constant processing speed, the drive control has "Built-In Memory" which acts to correct for any variables in its own electrical circuit.





Complete visual analysis of the Century Synchro-Coupled motor drive system operation is shown on the remote-control panel.

SYNCHRO DRIVE
WARP MERCERIZER

- **To suit variable processing requirements,** individual motor speeds are adjustable . . . once set, speeds are maintained constant within ±.03%.

This Century Electric Drive demonstrates just one of the many ways in which modern Performance-Rated power systems can be engineered to meet the needs of today's high-speed, automated processing. If your production plans involve unusual motor power or speed taming problems, we will be glad to work with you and your engineers. Simply write or wire for a conference at your convenience.

FOR THE FULL FACTS ON CENTURY PERFORMANCE-RATING FOR THE TEXTILE INDUSTRY, MAIL THIS COUPON TODAY.

To CENTURY ELECTRIC COMPANY
1806 Pine Street, St. Louis 3, Mo.

Please send information to:

Name.....*Title*.....

Company.....

Address.....

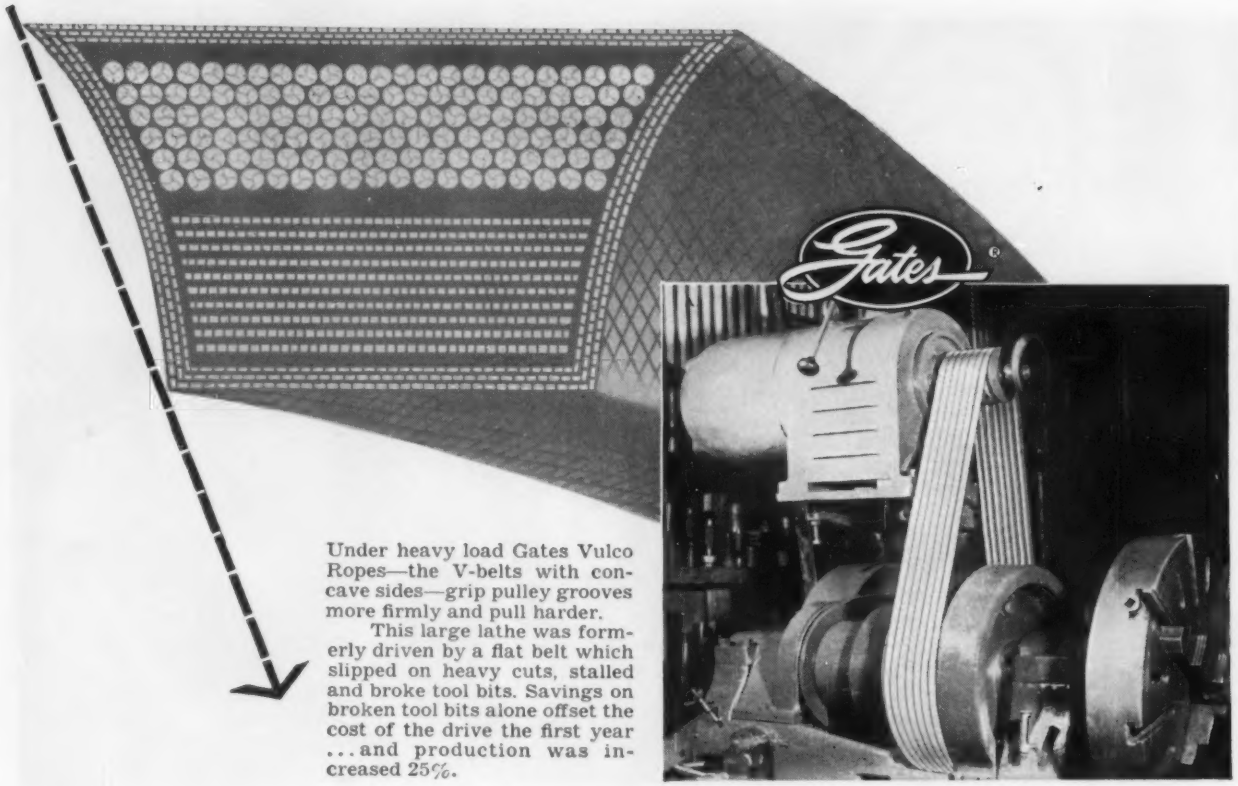
City.....*Zone*.....*State*.....

31

Performance-Rated©
Motors
1/8 to 400 H. P.

CENTURY ELECTRIC COMPANY

1806 Pine St. • St. Louis 3, Mo. • *Offices and Stock Points in Principal Cities*



Under heavy load Gates Vulco Ropes—the V-belts with concave sides—grip pulley grooves more firmly and pull harder.

This large lathe was formerly driven by a flat belt which slipped on heavy cuts, stalled and broke tool bits. Savings on broken tool bits alone offset the cost of the drive the first year ...and production was increased 25%.

Concave sides keep belt costs down!

Industry is saving thousands and thousands of dollars every year by specifying Gates Vulco Ropes—the V-Belts with *concave sides* (U.S. Pat. No. 1813698).

Here's the interesting reason *why* Gates belts save money:

On the bend around the sheave the *precisely engineered* concave sides (Fig. 1) of the Gates belt fill out and become straight (Fig. 1-A). Thus the belt makes uniform contact with the sides of the pulley. That means sure pulling power and *even distribution of wear*. Longer wear, fewer replacements cut belt costs...reduce down time...contribute to profits.

Simple test proves value of concave sides

Bend a straight-sided belt (Fig. 2) and feel the sides *bulge out* around the bend. The bulging sides prevent the belt from fitting evenly in the pulley groove (Fig. 2-A). Uneven contact causes uneven wear...shortens belt life...increases costs.

Keep belt costs *down* by specifying Gates Vulco Rope Drives—the V-Belt with *concave sides*. Belts you need are readily available from nearby distributor stocks. The Gates Rubber Company, Denver, Colorado—*World's Largest Maker of V-Belts.*

Gates Engineering Offices and Distributor Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.

TPA 25-A

GATES VULCO ROPE DRIVES

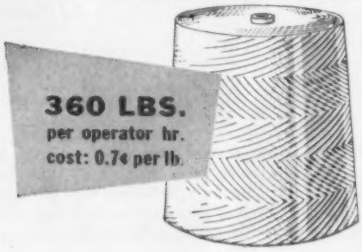
70% COST SAVINGS

on twisting and winding tough jute wrapping twine by using the

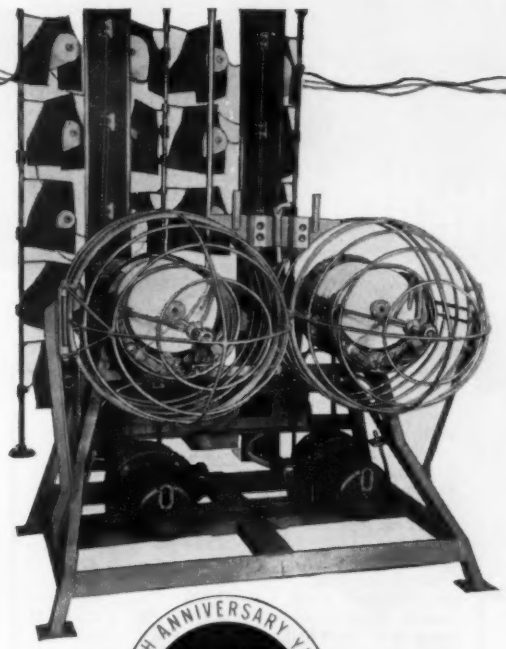
NEW Whirlwind* TWISTER WINDER

OLD METHOD

WHIRLWIND METHOD



SAVINGS: 1.7¢ per lb.



Here's a good example of how the new Whirlwind Twister Winder slashes costs on a wide variety of plyed cords, yarns, twines and cordage.

A cost analysis for one manufacturer of 680 ft./lb. jute wrapping twine by conventional two-machine method showed:

Twisting: 210 lbs./operator/hour—cost: $0.012/lb.
Winding: 210 lbs./operator/hour—cost: 0.012/lb.
Total cost to twist and wind sales packages, 210 lbs./operator/hour: $0.024/lb.

Processed on the new Whirlwind, *in a single operation,* big 20-pound, precision wound sales packages were produced for 70% less cost:

Twisting *and* winding (one operation)
Total cost, 360 lbs./operator/hour: $0.0072/lb.
(This includes royalty for use of machine)

Besides this outright saving of almost 1¾¢ per pound, additional savings also result from reduced handling, more trouble-free operation, and the smaller floor space required for the double-spindle Whirlwinds.

To enjoy similar cost savings on your twisting and winding operations, call in your nearest Warner & Swasey Field Engineer. He'll be glad to arrange a cost analysis of processing your materials on the new Whirlwind Twister Winder.

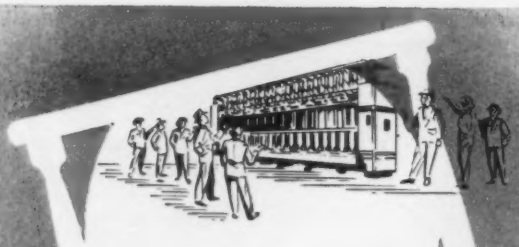
*Trademark

75TH ANNIVERSARY YEAR
WARNER & SWASEY
Cleveland
PRECISION MACHINERY
1880 — 1955
TEXTILE MACHINERY DIVISION

SALES OFFICES

Main Office and Factory: 5701 Carnegie Ave., Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass. 6910 Market St., Philadelphia, Pa.
121 11th St., N.E., Atlanta 3, Ga. 1820 Browning Ave., Charlotte 5, N. C.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS . . . WITH A WARNER & SWASEY



In 1952
SACO-LOWELL *Introduced*
the **GWALTNEY SPINNING FRAME** —
the only revolutionary spinning
improvement in 100 years

NOW IN 1955

OVER 356,000 SPINDLES OF
SACO-LOWELL GWALTNEY SPINNING
ARE IN DAILY OPERATION —

A major step in the automation
program of those mills

Gwaltney Spinning Frames have demonstrated beyond any doubt their ability to produce yarns that are stronger, far more even, and of higher grade than the same count yarn produced from the same stock with conventional spinning — and this improved quality has been produced at considerably lower operating costs and resultant higher profit.

The superiority of Gwaltney Spinning is achieved through a combination of many developments including

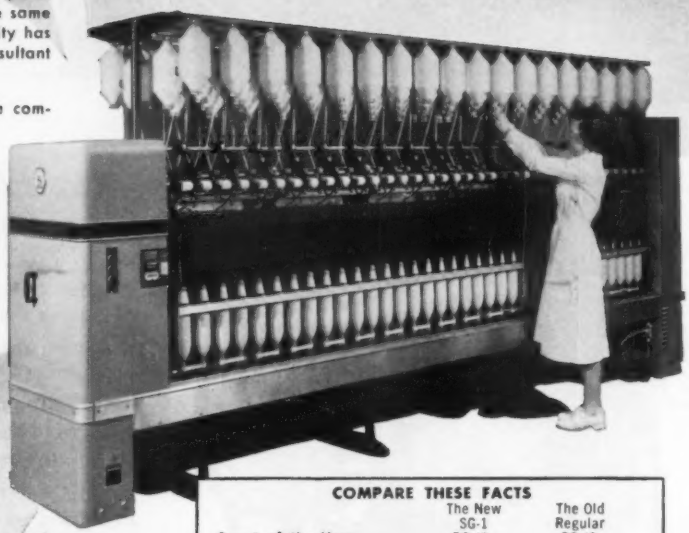
- Balloon controls
- Practically uniform tension at all stages of the doff, regardless of bobbin size and ring rail position Plus, many other special features

Saco-Lowell Gwaltney Spinning Frames can be successfully used for processing all of the current commercially used fibres: cotton, wool, synthetics and blends.

They can be equipped with Shaw Drafting element, Duo Roth, Standard Gwaltney, SS-4G or Z-6.

The purchase of Gwaltney Spinning is an "investment in progress" that pays off in higher profits and top quality.

A Saco-Lowell engineer will be glad to give you full details, or, arrange a demonstration.



COMPARE THESE FACTS

	The New SG-1	The Old Regular
Count of the Yarn	20/1	20/1
Length of Yarn Traverse	10.62"	5.88"
Ring Size	3.0"	2.0"
Weight of Yarn on Bobbin	12 oz.	3.2 oz.
Yards of Yarn on Bobbin	12,600	3,360
Unwinding Time at 500 yds./M	25.2 Min.	6.72 Min.
Bobbins creeled per Spindle per Hr. at Winder	2.39	8.93
Spindle Speed	7,920	7,920
Traveler Speed	6,220 Ft./M	4,146 Ft./M
Speed of 1" Front Roll	170 R.P.M.	170 R.P.M.
100% Production per Spindle per Hr.	.053 Lbs.	.053 Lbs.
Turns per Inch of Twist	14.9	14.9
Doffing Cycle	14.73 Hrs.	4.14 Hrs.
Estimated Efficiency	96.1	91.2
Net Production per Spindle Per Hr.	.0509 Lbs.	.0483 Lbs.
Increase for SG-1	5.4%	

SACO-LOWELL
60 BATTERYMARCH STREET, BOSTON 10, MASS.
Shops at BIDDEFORD and SACO, MAINE, and SANFORD, N. C.
SALES OFFICES: CHARLOTTE • GREENSBORO • GREENVILLE • ATLANTA

Satisfaction rests on the carton

Johnson & Johnson sells the same quality that shippers look for in Union Corrugated Containers—protection. Union boxes are strong and dependable. They are where you want them, when you want them. Consider this definite evidence of Union superiority: More than half the major users of shipping containers who maintain their own package testing laboratories are satisfied Union customers.

TRADE MARK UNION
INTEGRATED PLANNING
INTEGRATED PRODUCTION

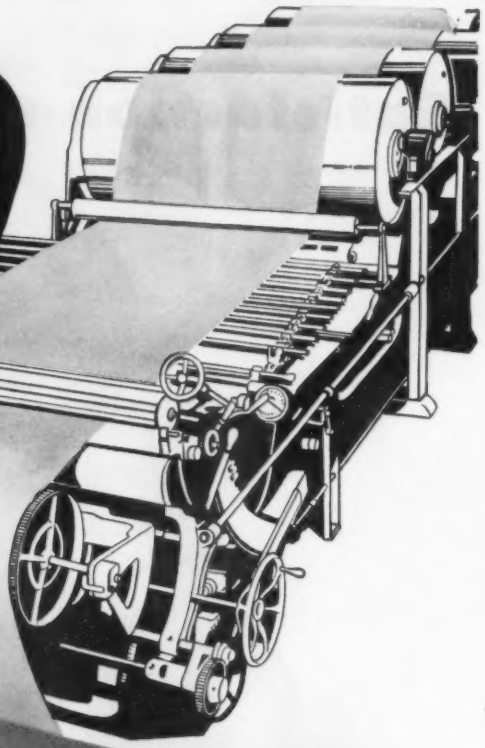
UNION BAG & PAPER CORPORATION

CORRUGATED CONTAINER DIVISION • Box Plants: Savannah, Ga., Trenton, N. J., Chicago, Ill.

Eastern Division Sales Offices: 1400 E. State St., Trenton 9, N. J. • Southern Division Sales Offices: P.O. Box 570, Savannah, Ga.
Western Division Sales Offices: 4545 West Palmer, Chicago 39, Ill. • Executive Offices: Woolworth Bldg., New York 7, N. Y.

SEALMASTER

BALL BEARING UNITS *Deliver the Goods!*



In an industry that consumes approximately one-tenth of the nation's horsepower and where machinery speeds range from 5 RPM to 12,000 RPM—precision is all important!

The importance of the bearing units carrying the load cannot be over-emphasized.

You will want the exclusive combination of features incorporated into every SEALMASTER Ball Bearing Unit on the machinery you build or buy.

You will also want to take advantage of the engineering cooperation extended by SEALMASTER Sales Engineers.

Your SEALMASTER inquiry may be one of your most important steps in 1955. Write today!

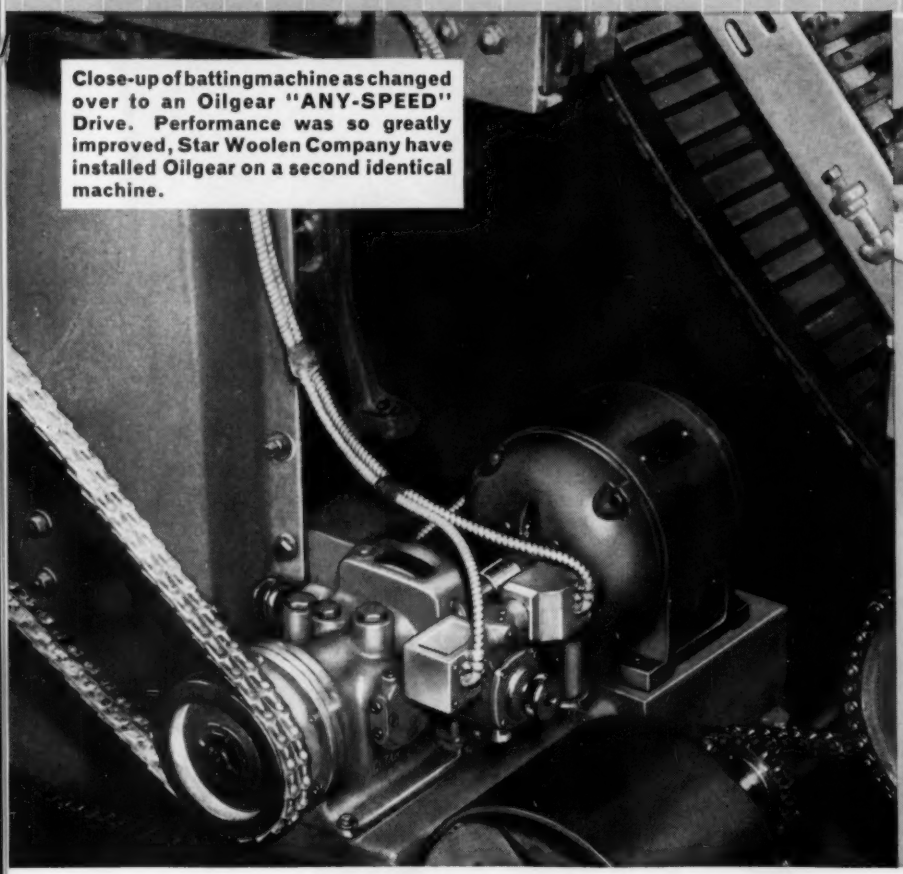
Write for your FREE copy of SEALMASTER Catalog 454.

SEALMASTER BEARINGS A Division of STEPHENS-ADAMSON MFG. CO., 10 Ridgeway Ave., Aurora, Ill.

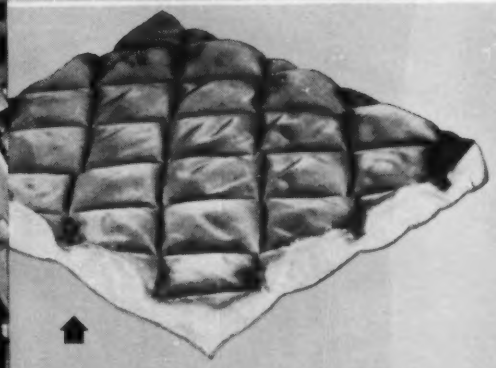
News about

B.F.Goodrich Chemical

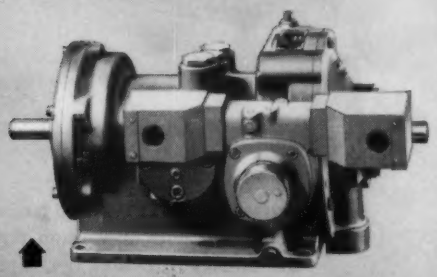
WITH OILGEAR "ANY-SPEED" REVERSING DRIVES— PRODUCTION WENT UP



Close-up of batting machine as changed over to an Oilgear "ANY-SPEED" Drive. Performance was so greatly improved, Star Woolen Company have installed Oilgear on a second identical machine.



NY-SUL-LITE (nylon batting) material manufactured by Star Woolen Company and used in famous make sports jackets, snow suits, and comforters.



Oilgear Type AXB-33 "ANY-SPEED" Fluid Power Transmission Drive.

A 26% INCREASE FROM SMOOTHER REVERSALS. OILGEAR PAYS FOR SELF IN ½ YEAR.

Just one of the many advantages of Oilgear "ANY-SPEED" Drives is highlighted here. The Star Woolen Company of Cohoes, N. Y., operates cross-lay batting machines. Original equipment included a leather belt and clutch reversing device because manufacture of the product requires cross-laying of nylon fibre or wool at periodic intervals. Reciprocation occurred a maximum of 22 times a minute. The going was so rough that the machine was frequently down.

When Star Woolen Company installed an Oilgear Reversing Transmission Drive, the improvement promised was immediate, and other advantages became apparent. The Oilgear drive cushioned acceleration and deceleration so smoothly that mechanical failure dropped sufficiently to give them 15% more production from that one factor alone. The speed of operation has been increased to 30 reversals a minute; operator can select "ANY-SPEED" from zero to maximum; positive, fast-acting electro-hydraulic control through manual push-buttons or automatic switches gives them a far more versatile machine, enabling them to handle jobs hitherto denied them. The Oilgear "ANY-SPEED" drive paid for itself in 6 months, out of savings in machine operation alone.

Smooth acceleration, deceleration and reversal, infinitely variable and completely controllable speeds are just part of the Oilgear "ANY-SPEED" Drive story. Don't you want to know the rest of it? It has proved extremely profitable in scores upon scores of machine applications. Write today and tell us something of *your* needs. THE OILGEAR COMPANY, 1577 West Pierce Street, Milwaukee 4, Wisconsin.

OILGEAR
Fluid Power

PIONEERS . . . NOW THREE PLANTS FOR FLUID POWER

PUMPS, MOTORS, TRANSMISSIONS, CYLINDERS & VALVES

News about

B. F. Goodrich Chemical *raw materials*

Geon latices | make many fabrics better in many ways:

TOP COATINGS—Geon latices provide maximum durability with minimum weight as finish coats on fabrics for luggage, upholstery, and other products requiring high wear-resistance. Coatings may be clear or pigmented—offer high gloss and excellent light stability—provide decorative, grease-proof, washable finishes.

PRE-COATINGS—Geon latices make excellent prime coats for loose fabrics, to improve top-coat adhesion and act as a barrier to excessive penetration of the top coating.

BINDERS—Natural and synthetic fibers are bound together by Geon latices to make strong, washable non-woven fabrics. Other Geon latex formulations are used as binders for metallic salts that provide resistance to stain or water, and as binders for pigments that lend decorative appeal.

SIZES-FILLERS-CARRIERS—As sizes, Geon latices increase the wear and ravel resistance of carpet backings, toughen felts for floor coverings and trunk linings. As fillers they are used in cotton processing to provide greater stiffness and strength. In other applications, Geon latices serve as carriers for specialty agents such as fungicides and flame inhibitors.

Geon latices are applied without the fire and toxicity hazards common to organic liquids. Methods of application include knife-coating, doctor kiss coating, immersion, spraying, printing, and impregnation. Viscosity, penetration, and coating weight are readily controlled, resulting in a product of utmost uniformity.

For technical information please write Dept. BY-6, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.
Cable address: Goodchemco.
In Canada: Kitchener, Ontario.

B. F. GOODRICH CHEMICAL COMPANY
A Division of The B. F. Goodrich Company

GEON RESINS • GOOD-RITE PLASTICIZERS . . . the ideal team to make products easier, better and more saleable.
GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

For more than 50 years SONOCO precision paper products have meant

Plus Value

CONES

Available with various surfaces, inside and outside printing, notches, scores, perforations and in many nose and tip designs. Lacquer tipping, dyed base and tip, and striped base can be furnished for yarn identification.

because . . .

SONOCO is constantly striving to improve present products and conducts a continuing program of research and development to meet the needs of an ever-changing textile industry.

SONOCO paper products have become "standard of the world" wherever textiles are made . . . a "plus value" advantage which has resulted in industry-wide benefits.

TUBES

Spiral, convolute, parallel or drawn construction from ⅛" to 36" I.D., in any practical length and wall thickness—for every textile need! Available in colors, various surfaces, treated, impregnated, perforated, scored, notched, printed, with crimped or burnished ends.

SPOOLS

A complete variety of standard sizes, or made to your order. Available with plain, printed and treated heads. Also standard and special tapered base single head thread spools in fibre and plastic.

Consult our sales-engineers or write us direct!

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BUSINESS ESTABLISHED 1840

NITREX

makes modern "crinolines" really

STAND OUT

Modern as fashion's demand for petticoats that make bouffant skirts stand out is Naugatuck's special Nitrex® latex which gives them just the right combination of stiffness and flexibility. This is but one of an extensive family of aqueous dispersions of natural or synthetic latex and plastics produced by Naugatuck.

Each is custom-compounded for the exact job it is to perform, and is shipped *ready for use* from either Naugatuck or our Los Angeles plant. The almost endless variety of Naugatuck's Kralac®, Nitrex, and LOTOL® compounds provides the textile wet-processor a broad range of latex-base binders, finishes and printing assistants to help him obtain just the result desired... permanently!

Unlike many other materials formerly employed for these purposes, Naugatuck's latices don't wash out. The weave stability, hand and other properties they impart to the fabric *stay with it!*

Naugatuck, the world's leader in the field of latex compounding, offers you not so much a specific product as it does a *service.* A letter, wire or phone request will bring you expert processing assistance and result in the compounding of a material to fit exactly your particular processing requirements.

World's Largest Latex Producer and Compounder

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

US RUBBER

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia **IN CANADA:** Naugatuck Chemicals, Elmira, Ontario
Rubber Chemicals • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices • Cable Address: Rubexport, N. Y.

Air conditioning system designed by J. E. SIRRINE & CO., Greenville, North Carolina.
Installed by AMERICAN MOISTENING COMPANY, Charlotte, North Carolina.

Auto-AIRMAT Filters Protect Spinning Rooms At Highland Park Manufacturing Company

Lint and dirt meet a "solid wall" of AAF AUTO-AIRMAT filters at Highland Park Manufacturing Company's Mill No. 1, Charlotte, N. C. These automatic, self-cleaning filters—cleaning 108,000 cfm of both outside intake air and re-circulated air to spinning rooms — are protecting the air washers on two air conditioning systems.

The AUTO-AIRMAT is the *only* filter specially designed to remove lint fibers from the air and clean itself automatically! The Airmat media, installed in roll form at top of unit, becomes a moving filter curtain that is re-rolled at bottom with its lint load. Clean media is introduced automatically only in sufficient quantity to keep resistance at proper level. Disposal of collected lint is no problem—it's wrapped up in a handy roll.

For complete information, call your local AAF representative, or write direct for Bulletin 234.

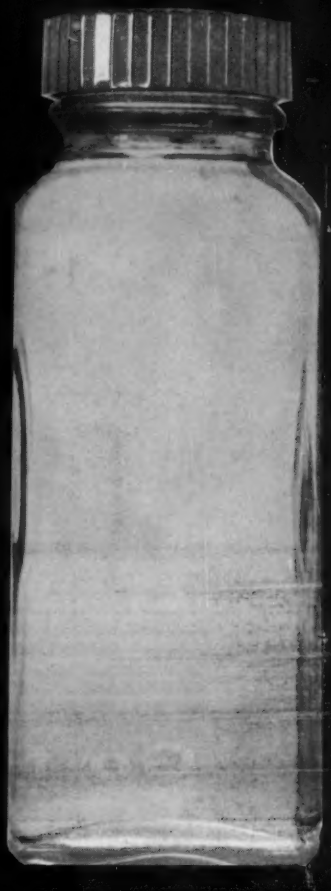
AAF herman nelson

American Air Filter
COMPANY, INC.

American Air Filter of Canada, Ltd., Montreal, P. Q. • 304 Central Avenue, Louisville 8, Kentucky

For more information, write direct or use Reader-Service post card.

AMERICA'S LEADING SYNTHETIC DETERGENT



Send for Sample

and See for yourself

Why

Nacconol® SL

IS THE LARGEST SELLING LIQUID DETERGENT* IN THE TEXTILE INDUSTRY

Many mills are now cutting wet processing costs with Nacconol SL because:

on an equivalent active-ingredient basis Nacconol SL is a better money-value than most dry products. Your detergent-materials cost is less because you get more-cleaning-power-per-dollar.

and

You save on handling costs, too. Nacconol SL, being a liquid concentrate, is easy and clean to handle, requires no dissolving. You simply add water to secure the desired working concentration. For complete technical data, send for Bulletin 326.

* Alkyl Aryl Sulfonate

Nacconol

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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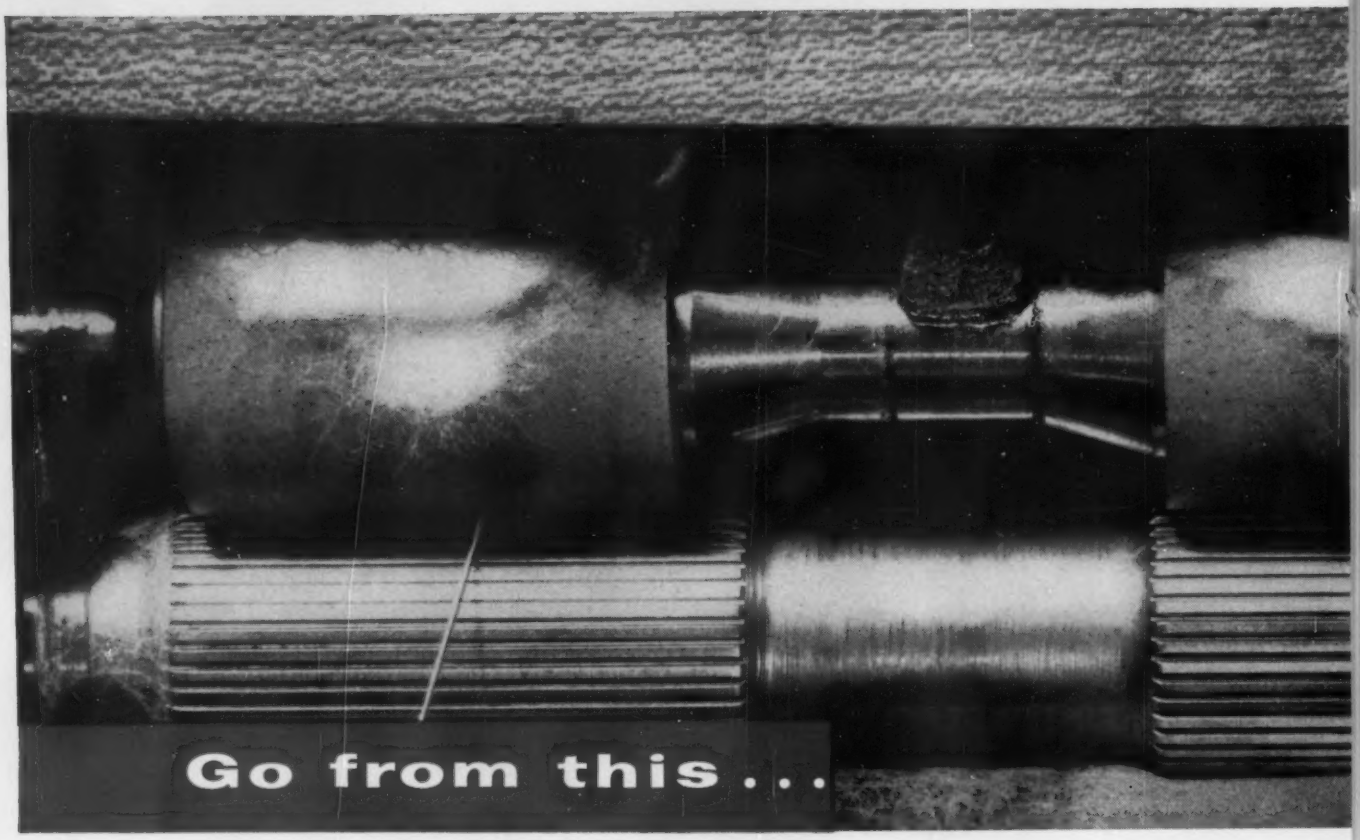
Allied Chemical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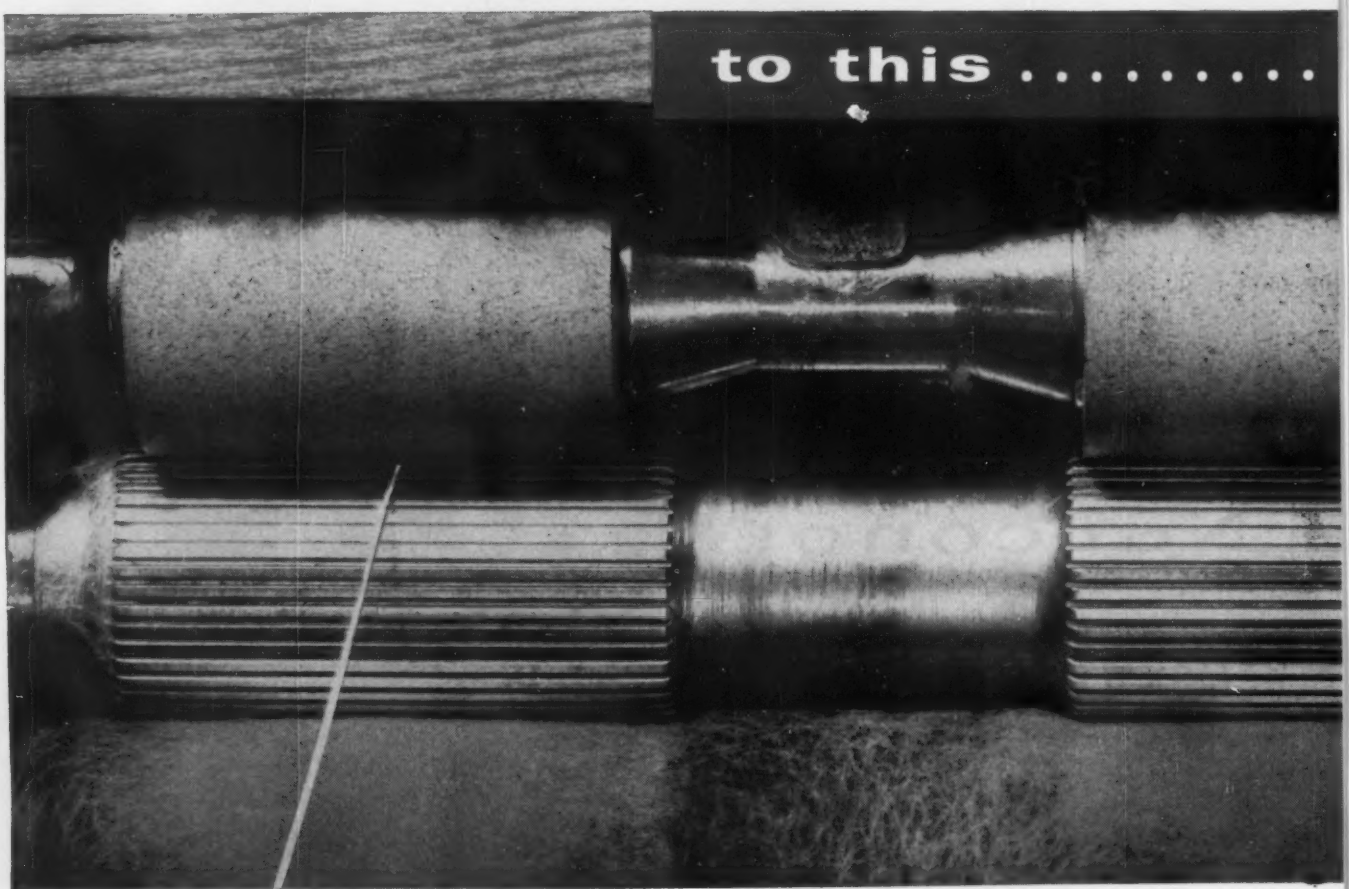

to this . . . . . .

PICTURE AT LEFT ABOVE shows serious eyebrowing on frame running 30's yarn.

LEFT BELOW—Not an eyebrow in sight! Frame is equipped with NO-742-S Accotex Cots.

. . . . . with NO-742-S Cots

MILL RECORDS PROVE NO-742-S ACCOTEX COTS PREVENT SERIOUS EYEBROWING

Years of test and regular runs in mills all over the country have shown that Armstrong NO-742-S Accotex® Cots eliminate serious eyebrowing.

One mill supervisor says, "With normal picking schedules, we've never had an eyebrow since we started to use NO-742-S." Another mill man puts it even more strongly. "When all other cots show eyebrows, these Accotex Cots don't."

NO-742-S Cots prevent eyebrows from forming because of their exclusive "constant-friction" drafting surface. This surface has just the right amount of bite needed to pick up loose fibers—and pack them well back under the clearer boards. If you've been seeing eyebrows on your clearer boards, it's time to switch to NO-742-S Cots. Your Armstrong man will be glad to help you set up a test frame. Why not call him today?

Send for our illustrated booklet, "Armstrong Textile Roll Coverings and Mill Supplies." Write Armstrong Cork Company, Industrial Division, 6511 Dauphin Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX COTS

. . . used wherever performance counts

 For more information, write direct or use Reader-Service post card.

Wellman Combing Company, Johnsonville, South Carolina
This plant, the first wool processing plant in the Southeast, and owned by Nichols and Company, Inc. of Boston, the largest wool treatment concern in the country, recently went into production. It has a capacity of 20 million pounds of grease wool per year, and is planned for enlargement to four times that capacity.

LOCKWOOD GREENE PROJECTS IN . . . . .

WOOL PROCESSING

Lockwood Greene's work, originating in 1832 with the design of textile mills, amounting to a present total of around one billion dollars in value, now includes the first two wool processing plants in the Southeast, here shown, for the world's two largest wool processing firms.

Continuous management services from site selection to plant completion.

LOCKWOOD GREENE
ARCHITECTS — ENGINEERS

BOSTON 16, MASS. 316 Stuart Street
NEW YORK 17, N. Y. 41 East 42nd Street
SPARTANBURG, S. C. Montgomery Building

OVER A CENTURY OF INDUSTRIAL PLANT EXPERIENCE

BROCHURE AVAILABLE UPON REQUEST

Santee River Wool Combing Company, Jamestown, S. C.
This plant, the second wool processing plant in the South, will have an initial area of 150,000 square feet for the first unit, processing 20 million pounds of wool per year, and is planned for an ultimate expansion to four units. This is the Southern Unit of the Branch River Wool Combing Company of Woonsocket, Rhode Island, owned by Amédée Prouvost of Roubaix, France, one of the two largest wool processing firms in the world.

produce *Yarns of Distinction*

MORE PROFITABLY
with Whitin Woolen Machinery

WOOL CARDS — 60″ — 72″ — 84″ widths
Felt Cards — 84″ — 100″ — 110″ widths
Automatic Card Feeds
Intermediate Feeds
Single 6 Double Rub Tape Condensers

*** FLEX-SPIN Wool Spinning Frame**
The most advanced wool spinning frame, containing *every* desirable feature.

MODEL E Wool Spinning Frame
The best known and most widely adapted spinning frame in the industry. Made by the originators of wool spinning by the ring method.

*Trade Mark

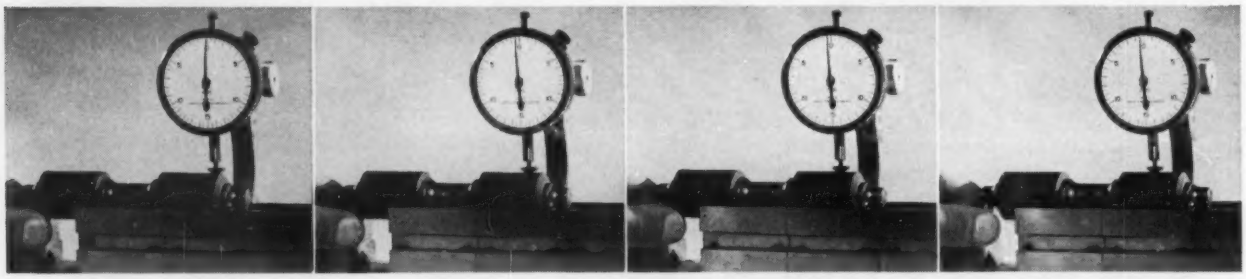
Whitin
machine works

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N.C. • ATLANTA, GA.
SPARTANBURG, S.C. • DEXTER, ME.

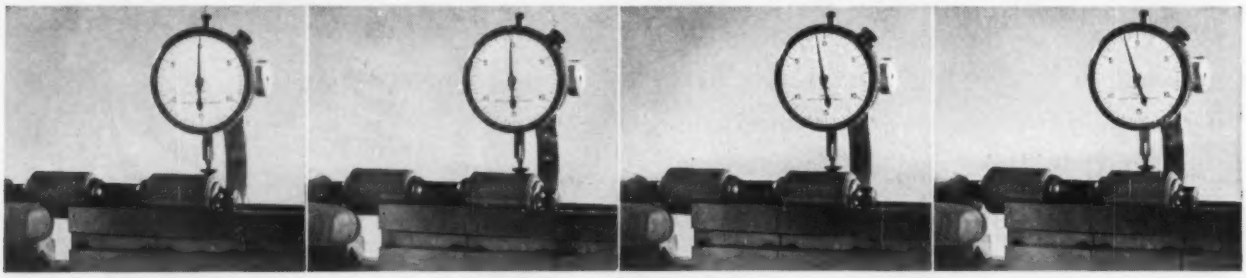
DAYCO COTS Stay True,

DAYCO EW-465 COTS



Start at left and compare each photo frame above with the one directly below. Note the remarkable lack of wear on the Dayco IBC Cot as against that of Brand "B" Cot as each is moved from left to right across the Dayco Roller Gauge.

Brand "B" COTS



Actual unretouched photographs of 9-month competitive test. Indicator shows wear in 1/1000 of an inch increments.

Here is proof of the superiority of Dayco Cots! These *un-retouched* photographs—taken after 9-month competitive test — prove Dayco EW-465 Cots with IBC, non-eyebrowing ingredient, last longer, do not groove.

Dayco Cots (top) were tested side by side on the same frame with competitive cots, using the same yarn, under identical conditions. After 9 months of testing, Dayco EW-465 Cots stayed truer, never exceeding 1/1000" in wear as proved by the Dayco Roller Gauge Test. The gauge proved competitive cots (Brand "B") began to groove, needed re-buffing more quickly.

Brand "B" cots exceeded the serviceable standard at the end of the 9-month test while Dayco Cots had many service hours yet remaining.

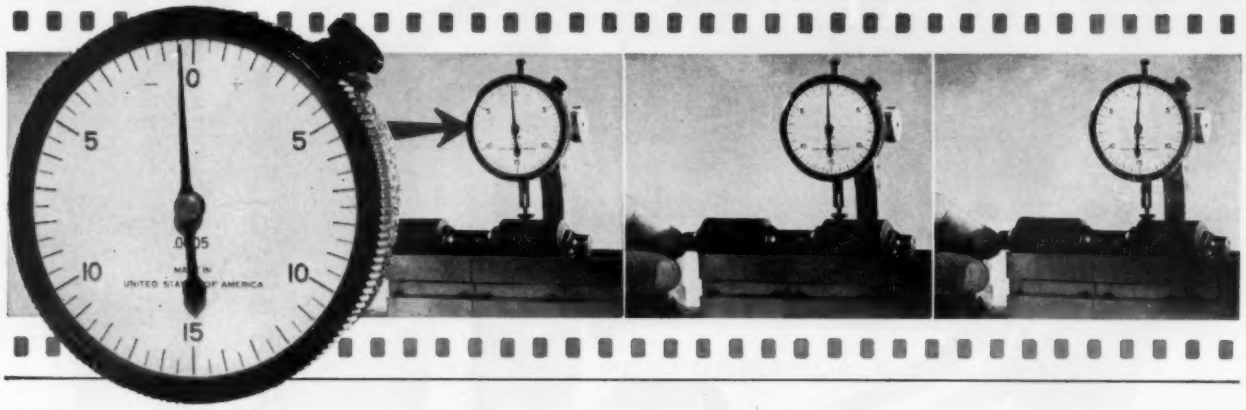
Dayco EW-465 Cots consistently outperform other cots because rigid control of the synthetic rubber compounds insure uniformly correct surface texture, cushion and friction. Only Dayco EW-465 Cots contain the amazing new ingredient, IBC, to combat and control eyebrowing. The chemical and mechanical action of IBC sets up the right coefficient of friction to eliminate the eyebrowing problem.

Because of Dayco Cots' extremely durable surface, perfect cushion, and exactly right coefficient of friction, they retain their superior physical properties throughout their long service life. In fact, Daycos' drafting ability *improves* with use!

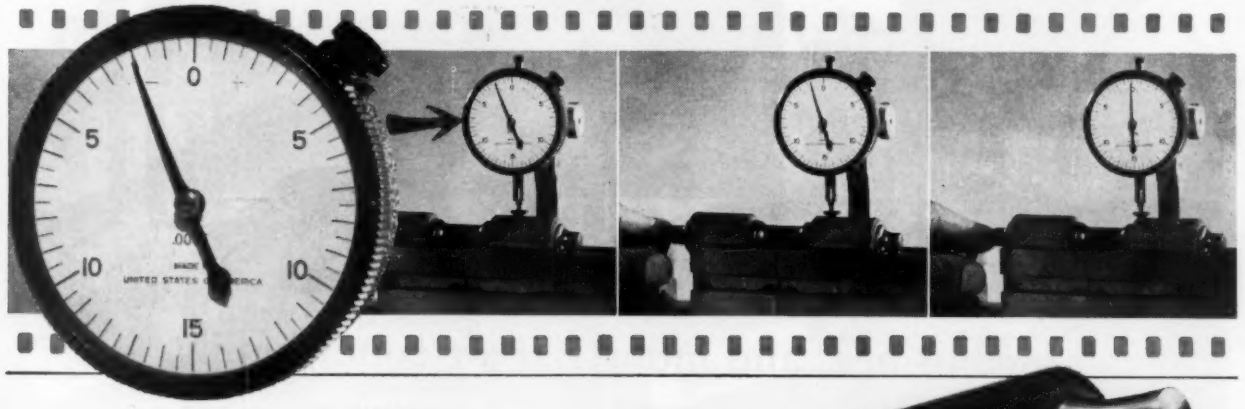
You benefit the instant you equip your frames with Dayco Cots. You can expect, and get, improved yarn quality, valuable savings in time, materials and labor and increased production at the lowest possible replacement cost. Try Dayco EW-465 Cots on your frames for personal proof of their performance. See your Dayco Representative for complete details.

Compare these Dayco features against any other cot...

Do Not Groove by Actual Test!



(Magnified Photo of Roller Gauge Measurement in exact center of cot.)



DAYCO COTS

- Successfully combat eyebrowing
- Create fewer lap ups and ends down
- Require fewer buffings
- Don't groove, pit or develop flat spots
- Unaffected by moisture or temperature changes
- Need fewer clearer board cleanings
- Draft better quality yarn
- Lower overall cot costs

Dayco Cots successfully combat eyebrowing

Actual mill tests prove New Dayco Cots with IBC ingredient successfully combat eyebrowing, draft better yarn and run longer between buffings on all types of frames.

© D.R. 1955

GOLDEN JUBILEE

Dayton Rubber 50 YEARS OF PROGRESS

Dayco and Thorobred Textile Products for Better Spinning and Weaving

Dayton Rubber Company, Textile Division, Dept. 351, Woodside Bldg., Greenville, S. C.

You get

SERVICE WITH A SMILE...

when you specify AIRTEMP for business and industrial air conditioning

So many people are eager to help you when you specify Airtemp!

First there are the *top engineers* of Airtemp Construction Corporation . . . ready to give you the benefit of years of *specialized* experience in air conditioning.

Then there are your *local* Airtemp service men—factory-trained and equipped to guarantee on-the-spot service through the years ahead.

All the people you deal with are fully trained by Airtemp and *Chrysler*—names long famous for advanced engineering and quality manufacture.

The result of Airtemp's fine engineering and efficient design is extremely low operating cost. So, when you consider that there's an Airtemp system to meet *every* qualification—there's hardly any reason for *not* specifying Airtemp!

AIRTEMP SERVES THE NATION!

CHRYSLER BUILDING EAST, New York, N. Y. Architects: Reinhard Hofmeister & Walquist; Consulting Engineers (Structural) Edwards & Hjorth; Consulting Engineers (Mechanical & Electrical): Guy B. Panero.

HAROLD GRUBMAN CO., North Hollywood Calif. Engineer: Sam L. Kaye, Los Angeles; Builders: Craig and Randall, Los Angeles.

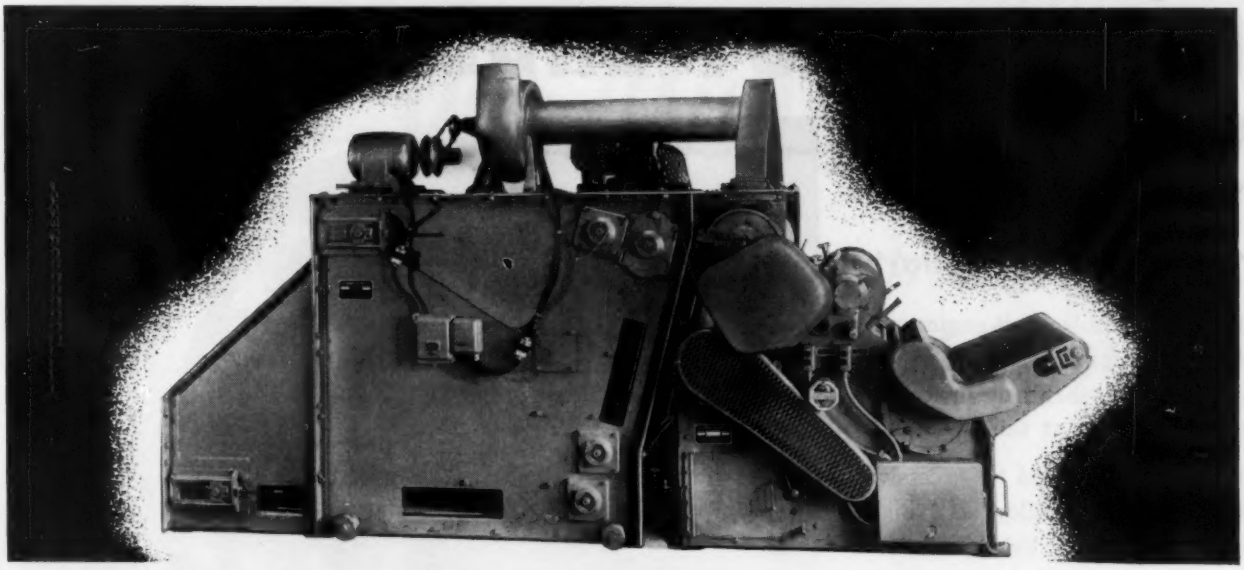
"AIRTEMP *BUILDS* AIR CONDITIONING TO FIT ANY REQUIREMENT!"

Write for information. *For complete details on what Airtemp offers you, write to: Airtemp Construction Corporation, Dayton 1, Ohio*

Airtemp DIVISION CHRYSLER CORP

AIR CONDITIONING · HEATING FOR HOMES, BUSINESS, INDUSTRY

HOW TO BUY ENDLESS BELTS



FOUR YEARS OF ACTUAL MILL PERFORMANCE DEVELOPED THE

NEW, IMPROVED MODEL 40B

RANDO-FEEDER | RANDO-WEBBER

NEW — **ENLARGED HOPPER** . . . full 50-cubic foot capacity.

NEW — **FLOOR APRON** gives even pressure of fiber on elevating apron. Speed readily adjustable.

NEW — **STRIPPER APRON** returns excess fibers to rear of hopper. No Feeler Plate or Start-Stop actions.

NEW — **ROTARY CONDENSER SCREEN BOX.**

IMPROVED — **SELECTIVE OUTPUT CONTROL** . . . unaffected by wide range in hopper level.

NEW USES — **BLENDING AND BLENDING LINES.**

COMPLETELY NEW — **DESIGN AND CONSTRUCTION** . . . same principles and functions.

IMPROVED — **PERFORMANCE** . . . product and output efficiency.

IMPROVED — **MAINTENANCE** . . . heavier motors and drives—readily accessible.

NEW — **DOUBLE DRIVE ROTARY CONDENSER** . . . interchangeable with Feeder Condenser . . . minimum spares needed.

NEW — **AIR CHAMBER** design for improved web uniformity. Large accessible clean-outs.

Rando-Feeders and Rando-Webbers have produced thousands of yards of random webs in around-the-clock production. Four years of proven performance. The same basic design today but new features . . . new versatility . . . improved performance. Available in 3 sizes: 40", 60" and 84". Inquiries are invited. Bulletin available.

TEXTILE DIVISION

CURLATOR

CORPORATION

EAST ROCHESTER, NEW YORK

HOW TO BUY ENDLESS BELTS

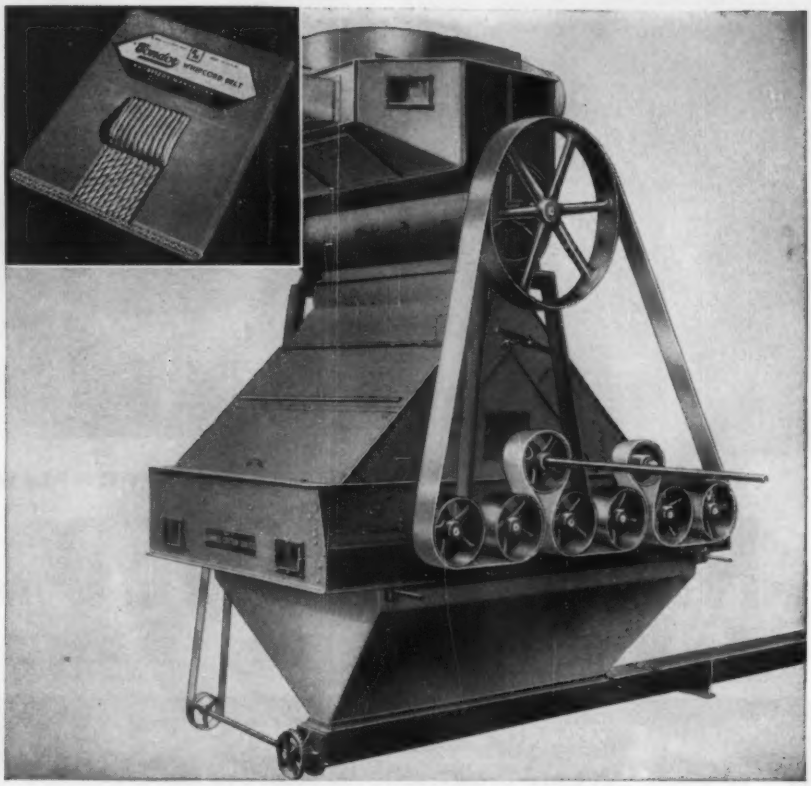
FOR LONGER LIFE on "Belt-Killer" Drives

"More Use per Dollar"

Look for a rubber belt engineered to give maximum flexibility and to eliminate belt shrinkage or stretch and separation at the cover-end.

Belt failures caused by excessive tensions, small pulleys and high speeds can be avoided by the careful selection of the endless belt you buy. Flexibility is of primary importance when selecting a belt for machines where serpentine drives supply power for several operations — for built-in drives with reverse bends and short centers. The belt you select should flex naturally in either direction . . . without stretching. It should be impervious to extreme atmospheric conditions because excessive shrinkage damages shaft bearings and shortens belt life. In ordinary belts, the cover-end tends to separate when rounding the pulleys because stress is concentrated in a narrow line seam. Look for the belt that extends the cover-end splice over a wide area so that stress is dissipated.

Specify, by name, the endless belt engineered to give you these advantages . . . specify Condor Whipcord Endless Belt.



CONDOR WHIPCORD ENDLESS BELT

An all-purpose belt designed for all types of endless drives, Condor Whipcord Belt offers exceptional advantages for "belt-killer" drives — short centers, small take-up, small pulleys, reverse bends, high speed and high tension. Extremely flexible, they feature an endless-wound, sealed-in cord construction which is pre-stretched during manufacture . . . they will not stretch or shrink on the drive and are virtually unaffected by variations in atmosphere. R/M's exclusive Extensible-Tip splice is a series of rubber rivets spaced over a wide area to secure the cover-end and eliminate cover separation. On some drives, Condor Whipcord Belts have outlasted 3 to 10 ordinary belts.

Let an R/M representative show you how you can get more dependable machine operation and longer endless belt life — "More Use per Dollar" — with Condor Whipcord Endless Belt.

RM 517 T

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Packings • Engineered Plastic and Sintered Metal Products • Bowling Balls

Make the right move!

Use Louis Allis Textile Motors and Adjustable Speed Drives

SELECT-A-SPEDE
An adjustable-speed drive for operation on A-C power. New magnetic amplifier, adjustable voltage control. 5 to 150 HP, single motor or multi-motor range drives.
LOOM MOTORS
Built especially for loom service. For new, old, and 3- point mountings. ½ to 2 HP.
SELF-CLEANING MOTORS
Pioneered and developed by The Louis Allis Co. for textile applications. Special torques for card drives — soft starts for spinning frames — or any other special application.
AJUSTO-SPEDE
An Alternating Current adjustable speed drive using the versatile Eddy Current Clutch. ¾ to 75 HP. Also available in multi-unit range drives.
GENERAL PURPOSE
General-purpose motors include splash-proof as shown. Available with dye-house insulation, excellent for pump application in finishing and bleach plants.

Louis Allis has a special purpose motor or multi-motor range drive for any power requirement in the textile industry.

Louis Allis motors and multi-motored range drives are busy turning the wheels of the textile industry — on cards, pickers, warpers, tenters, spoolers, slashers, batchers, padders — and all the other complex machinery that produces America's fabric.

Let Louis Allis help you to select the proper motors or drives for greater production and more efficient operation. Consult your nearest Louis Allis District Office or write us.

THE LOUIS ALLIS CO.
MILWAUKEE 7, WISCONSIN

TE-102

SCHWEITER
MONOFIL-CONER
Type KEK-PN

FEATURES OF THE SCHWEITER MONOFIL-CONER TYPE KEK-PN

1. "Penta" gear prevents slipping down of thread layers.
2. Infinitely variable conditioning or oiling device.
3. Constant yarn speed or increasing speed.
4. Compensating tensions.
5. Soft winding roller.

the one — the only — winder that answers all these requirements of the ideal knitting package!

- Winding costs are low.
- Package has required softness.
- The yarn comes off the package at a uniform tension.
- In its passage from the cone, the yarn is neither stretched nor unduly disturbed.
- The yarn is properly and uniformly lubricated or waxed so that it will run smoothly on the machine.

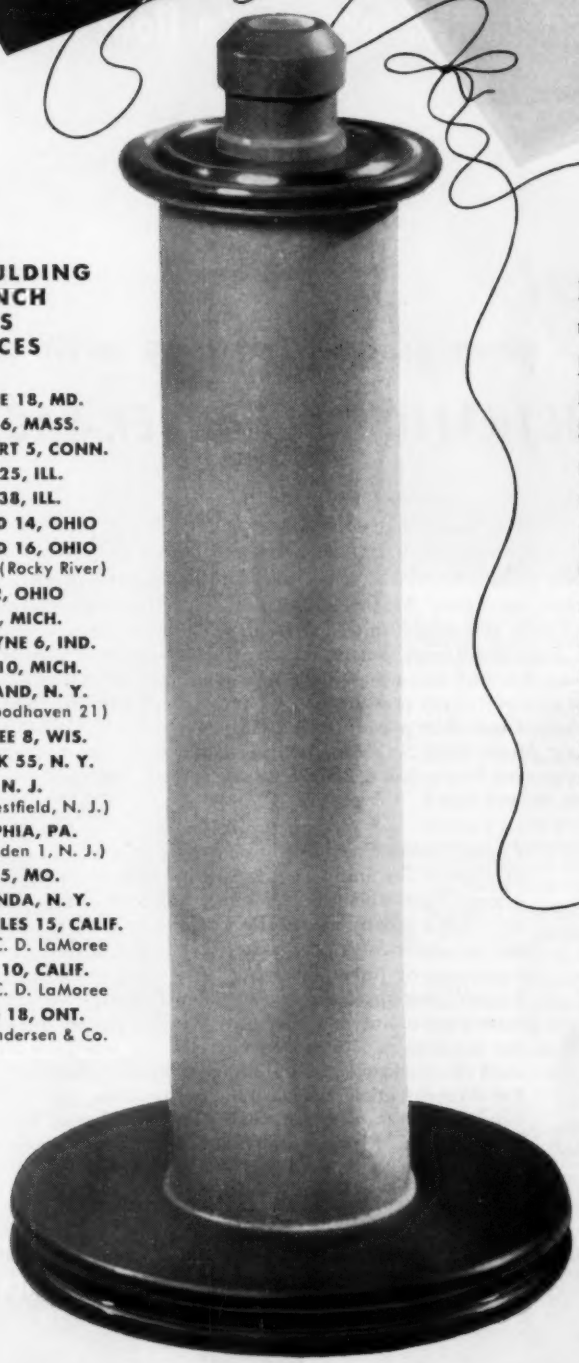
Now — you can wind the most delicate yarns such as very fine denier Nylon, Dacron, Orlon, Rayon . . . rubber covered yarns . . . and all new textured yarns like Helanca, Banlon, Agilon, Taslan, etc. In short, all yarns which have to be wound with uniform tension, with or without lubrication or conditioning, to a perfect, soft pineapple cone of uniform density. It's the finest — the only — machine of its kind . . . ready to go to work for you now.

At your request, we will be happy to send you descriptive literature and results of winding tests with your own yarn.

SCHWEITER LTD.
HORGEN (ZURICH) SWITZERLAND

Sales and Service in the United States and Canada
The **AMERICAN SCHWEITER COMPANY**
WHIT'NSVILLE, MASSACHUSETTS · SOLE AGENTS

Spaulding DOWN TWISTER BOBBINS



Here's a down twister bobbin that's built to withstand the tremendous crushing power of Nylon, Dacron (DuPont trademarks) and other synthetics. Like all Spaulding bobbins, it's dynamically balanced — stresses are uniformly distributed. Because of its satin-smooth finish, it won't splinter, won't snag materials. Couple these advantages with simplicity of construction and assured dimensional stability and you end up with a bobbin that gives you long, trouble-free life — more value because all fibre and plastic parts are produced, fabricated and assembled in Spaulding's own plant.

SPAULDING BRANCH SALES OFFICES

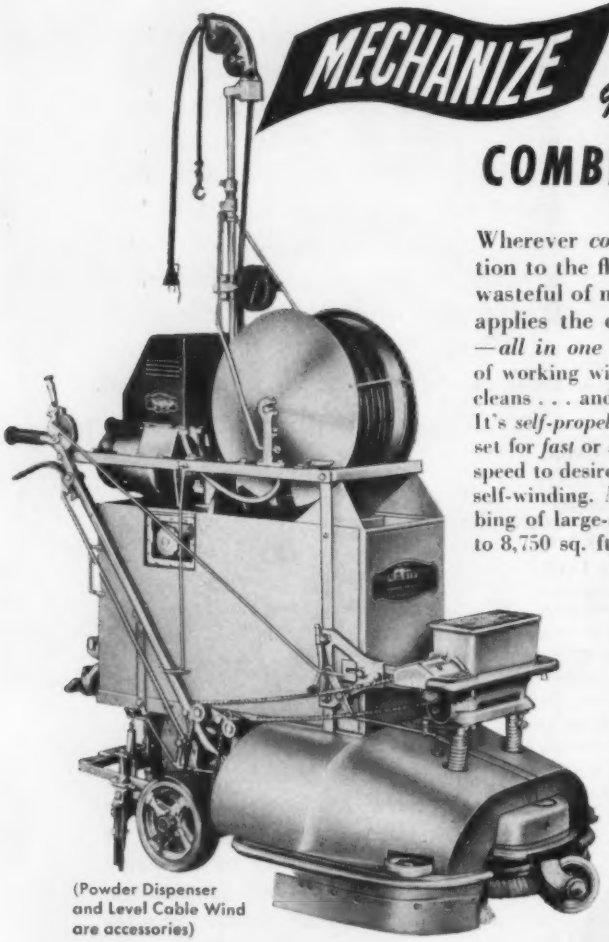
BALTIMORE 18, MD.
BOSTON 16, MASS.
BRIDGEPORT 5, CONN.
CHICAGO 25, ILL.
CHICAGO 38, ILL.
CLEVELAND 14, OHIO
CLEVELAND 16, OHIO
(Rocky River)
DAYTON 2, OHIO
DETROIT 1, MICH.
FORT WAYNE 6, IND.
LANSING 10, MICH.
LONG ISLAND, N. Y.
(Woodhaven 21)
MILWAUKEE 8, WIS.
NEW YORK 55, N. Y.
NEWARK, N. J.
(Westfield, N. J.)
PHILADELPHIA, PA.
(Camden 1, N. J.)
ST. LOUIS 5, MO.
TONAWANDA, N. Y.
LOS ANGELES 15, CALIF.
C. D. LaMoree
BERKELEY 10, CALIF.
C. D. LaMoree
TORONTO 18, ONT.
A. A. Andersen & Co.

In addition to bobbins, Spaulding makes many other products for the textile industry including headless package tubes, take-up tubes, sizing tubes, kelly rolls, lap rolls, receptacles, also pirn caps and redraw caps for headless package tubes and shipping pirns. Ask your nearest Spaulding Branch Sales Office for full information.

SPAULDING FIBRE COMPANY, INC., TONAWANDA, NEW YORK

Let's not clean away dollars and man-hours with costly, inadequate floor care

MECHANIZE *your floor-cleaning with a* COMBINATION SCRUBBER-VAC!



(Powder Dispenser and Level Cable Wind are accessories)

Wherever *combination-machine-scrubbing* is the practical solution to the floor-cleaning problem, any lesser, slower method is wasteful of money and manpower. A *Combination Scrubber-Vac* applies the cleanser, scrubs, flushes if required, and picks up —*all in one operation!* Maintenance men like the convenience of working with this single unit . . . the thoroughness with which it cleans . . . and the features that make the machine simple to operate. It's *self-propelled*, and has a *positive* clutch. There are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Cable reel is self-winding. *Model 213P Scrubber-Vac* at left, for heavy duty scrubbing of large-area floors, has a 26-inch brush spread, and cleans up to 8,750 sq. ft. per hour!

Finnell makes *Scrubber-Vac Machines* in a full range of sizes—for small, vast, and intermediate operations. From this complete line, you can choose the size that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that you can lease or purchase a *Scrubber-Vac*, and that *a Finnell floor specialist and engineer is nearby* to help train your maintenance operators in the proper use of the machine . . . to recommend cleaning schedules for most effectual care . . . and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 1911 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

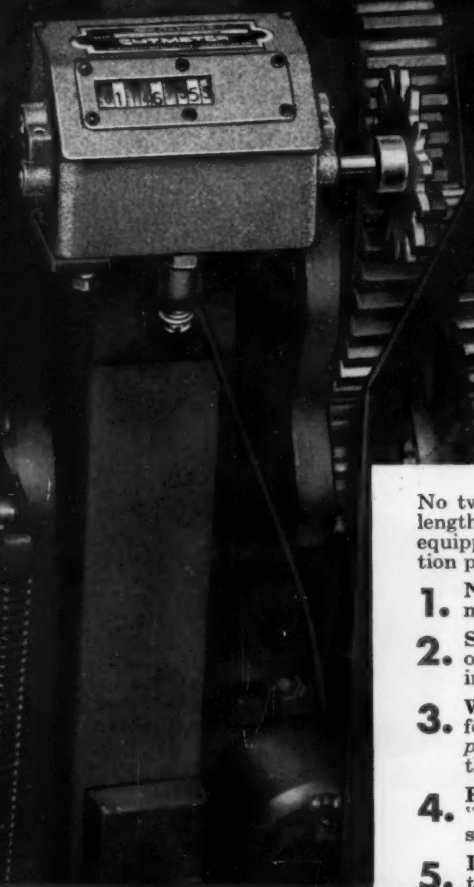
Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

In these 5 Ways

VEEDER-ROOT CUT METERS

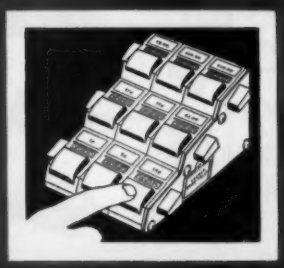
Cut Costs...Speed Sales



No two ways about it . . . customers are demanding uniform cut lengths of cloth. And that's exactly why another modern mill just equipped 900 looms with V-R Cut Meters. Here's how the installation paid off . . . 5 ways:

1. **NO CUT MARKS** to be made or removed. No special treatment needed to remove dies in finishing some fabrics.
2. **STYLE-PLANNING MORE ACCURATE** . . . exact length of cuts for any style can be controlled and filling changes can be introduced at proper point to meet style changes.
3. **WEAVERS FORGET CUT MARKS** . . . use the time instead for cloth inspection and loom tending. *For when a cut reaches the predetermined length*, the Cut Meter lights a light or actuates the warp stop motion.
4. **REDUCES SHORT LENGTHS** . . . Cut Meter can be set to "even up" on the lengths of the next few cuts in the event of a smash or other trouble.
5. **INSPECTION SIMPLIFIED** . . . because cuts of cloth on the same styles are of even length. This in turn simplifies finishing and shipping problems.

Customers can be *sure* they'll get uniform cut lengths from mills equipped with Veeder-Root Cut Meters. And that's why more and more mills are giving their customers this assurance which speeds sales. How about *your* mill? Just get in touch with the nearest Veeder-Root office.



Cut Meters come in any combination up to 6 banks high and 12 units wide. Write for seven sheet and paper.

VEEDER-ROOT INCORPORATED

"The Name That Counts"

HARTFORD 2, CONNECTICUT • GREENVILLE, S. C.

Chicago 6, Ill. • New York 19, N. Y. • Montreal 2, Canada • Dundee, Scotland • Offices and Agents in Principal Cities

HIGH-FINISHING OUTPUT of dyeing range is speeded by G-E direct-current motors. In this installation, packaged Speed Variator power unit was located out of range area to save floor space.

G-E packaged range drive steps up output, cuts down maintenance

INCREASED PRODUCTION—G-E packaged Speed Variator range drive supplies the flexibility and close-speed control you require for continuous operation of textile-finishing equipment. Providing easily controlled speeds that are smoothly adjustable over a wide range, this packaged system keeps motors exactly co-ordinated, maintains constant cloth tension and helps improve quality of goods.

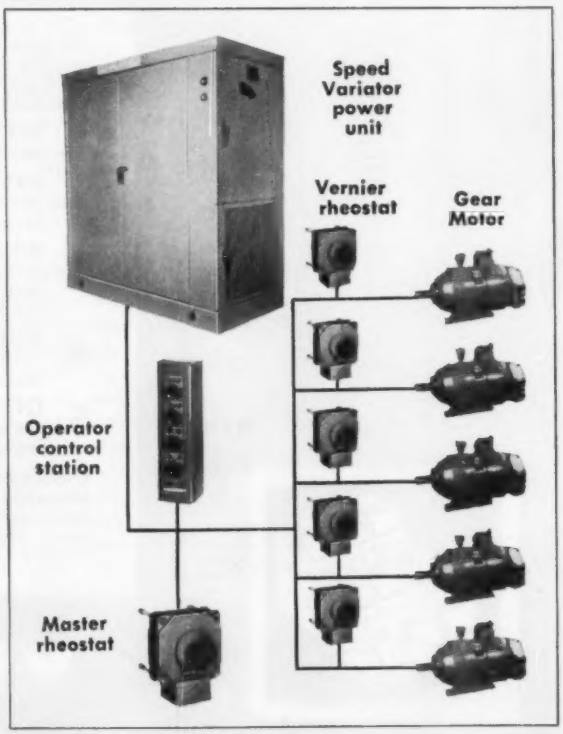
EASY INSTALLATION—Compact Speed Variator power unit is delivered to you completely wired, assembled and tested. No special foundation is required, and unit may be placed in any convenient location.

SIMPLE OPERATION—Speed of the entire range is controlled with a simple rheostat dial or by remotely mounted push buttons. After initial adjustment, co-ordination of the driven range is completely automatic.

LESS MAINTENANCE—Smooth operation and sturdy construction of General Electric's packaged range drive reduces maintenance time and expense. All components of Speed Variator unit are protected within positive-pressurized cabinet and are easily reached through hinged doors. Inexpensive, replaceable glass-fiber filters help keep lint and dirt from packaged power system. The G-E three-piece gear-motors require no special mounting and may be removed for servicing without disconnecting gears.

ENGINEERING HELP—To learn more about range drives and the advantages that adjustable speed can bring to your operation, contact the textile expert at your nearest G-E Apparatus Sales Office. Direct Current Motor and Generator Department, General Electric Company, Erie, Pennsylvania. 815-6

GENERAL ELECTRIC



QUICK, FINGER-TIP CONTROL of entire range is provided by push-button control system and master rheostat. For easy, low-cost installation, controls and Speed Variator power unit can be installed in any convenient location.

ANNOUNCING!

...A TOTALLY NEW NEEDLE LUBRICANT for fine-gauge full-fashioned and seamless knitting machines

SHELL VEXILLA OIL 117

1. **12 TIMES GREATER RUST PROTECTION** than the best current oils . . . during both operating and shutdown periods.

2. **Eliminates green soap formation,** and minimizes machine oxidation.

3. **Controls nylon size deposits,** and permits easy cleaning during shutdown periods.

4. **Very low surface tension,** resulting in increased wetting and lubrication.

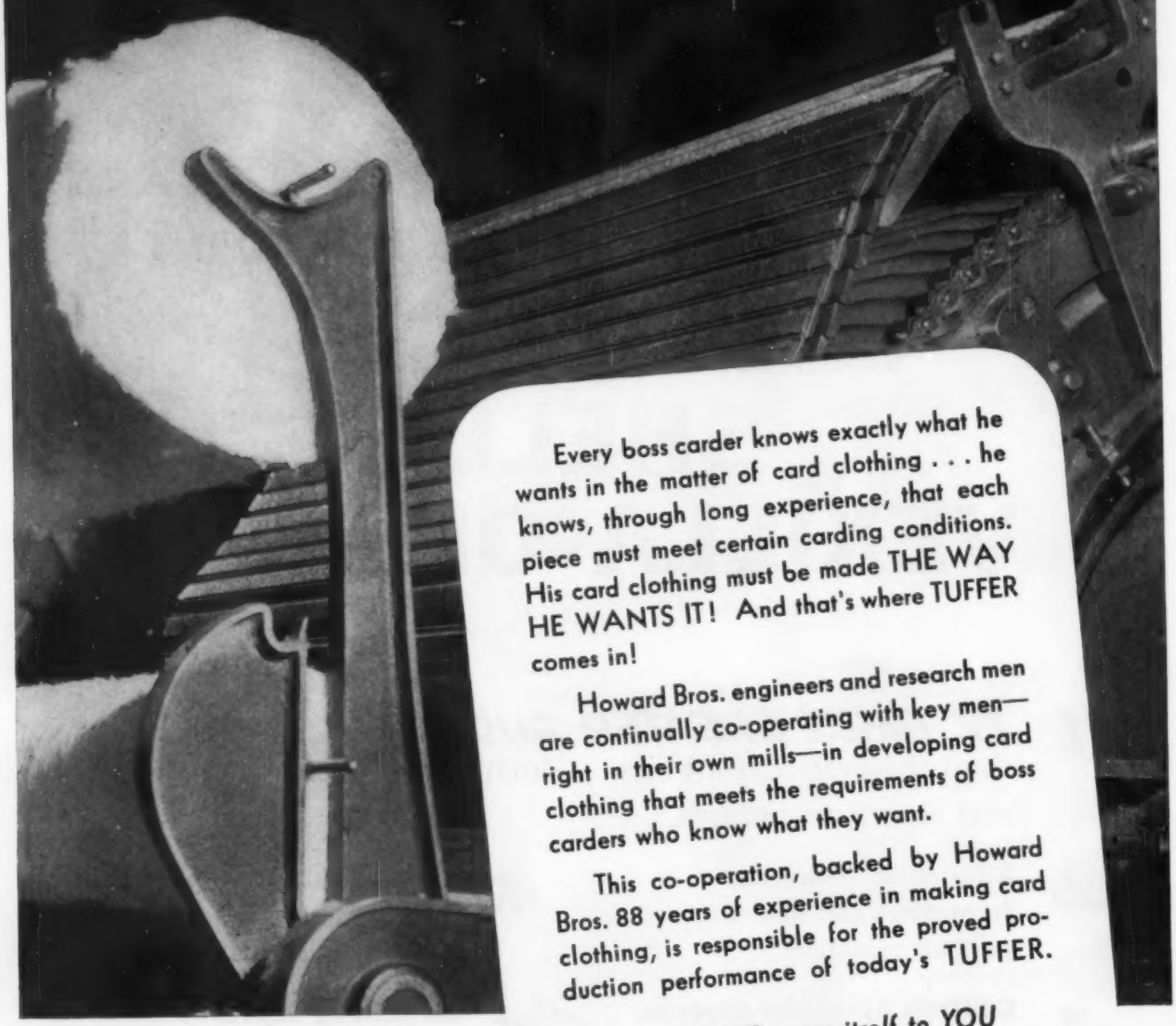
5. **No gummy deposits . . .** contains no fatty acids.

Shell VEXILLA OIL 117 establishes a new set of standards in knitting machine lubrication. Test it in comparison with the oil you are using. Write for further information.

SHELL OIL COMPANY
50 West 50th Street • New York 20, New York

SHELL

TUFFER can give you
the Card Clothing Your Boss Carder Wants



Every boss carder knows exactly what he wants in the matter of card clothing . . . he knows, through long experience, that each piece must meet certain carding conditions. His card clothing must be made THE WAY HE WANTS IT! And that's where TUFFER comes in!

Howard Bros. engineers and research men are continually co-operating with key men—right in their own mills—in developing card clothing that meets the requirements of boss carders who know what they want.

This co-operation, backed by Howard Bros. 88 years of experience in making card clothing, is responsible for the proved production performance of today's TUFFER.

Let TUFFER prove itself to YOU ON YOUR CARDS!

B-1

Manufacturers of Card Clothing since 1866

Tuffer **HOWARD BROS.**

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., and Gastonia, N. C.

Direct Representation in Canada

TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Re-covered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plants • Midgley Patented, and Howard's Special Hand Stripping Cards • Top Flat Chains

For more information, write direct or use Reader-Service post card.

DIEHL

does it again... with

an entirely new concept in

loom power transmitters

This new Loom Drive embodies all the advantages of its famous predecessor plus many *new* outstanding design and construction features never before incorporated in a Loom Power Transmitter!

Act now... write, wire or phone for information about this remarkable new Loom Power Transmitter.

Diehl

DIEHL MANUFACTURING COMPANY

Electrical Division of THE SINGER MANUFACTURING COMPANY

Finderne Plant, SOMERVILLE, NEW JERSEY

ATLANTA • BALTIMORE • CHARLOTTE • CHICAGO • CINCINNATI • MILWAUKEE • NEEDHAM, MASS. • NEW YORK • PHILADELPHIA • PITTSBURGH

For more information, write direct or use Reader-Service post card.

AIRTEMP GOES "OUT-OF-THE-WAY"

. . . new suspended air conditioner saves valuable office floor space

For more information, write direct or use Reader-Service post card.

Only Airtemp offers you this choice in Air Conditioning

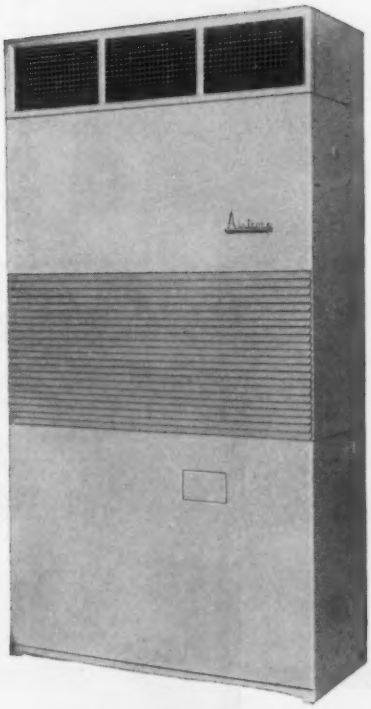
NEW "OUT-OF-THE-WAY" suspended model is the latest Airtemp advancement . . . plus a choice of 13 sizes in WATERLESS or WATER-COOLED packages

The Biggest Value in Air Conditioning for Business

COSTS LESS TO OPERATE AND OWN—longer life and economy is built into every Chrysler compressor—costs less to operate, does more work—*without* vibration! Compressor is completely sealed in oil so that dirt and moisture can't get in.

MORE DEPENDABLE—5-year warranty guarantees the entire refrigeration circuit of every Airtemp "Packaged" air conditioner. You'll find Chrysler-Quality and engineering built in . . . not just assembled, but *manufactured* by Airtemp.

EXPERT INSTALLATION AND SERVICE—your nearby Airtemp Dealer is factory-trained . . . an air conditioning *specialist* who will install your new Airtemp "Packaged" unit properly. We're proud of his prompt, efficient service.



NEW ADVANCED Styling! **IN 13 SIZES—WATERLESS OR WATER-COOLED PACKAGES FROM 2 TO 30 H.P.**

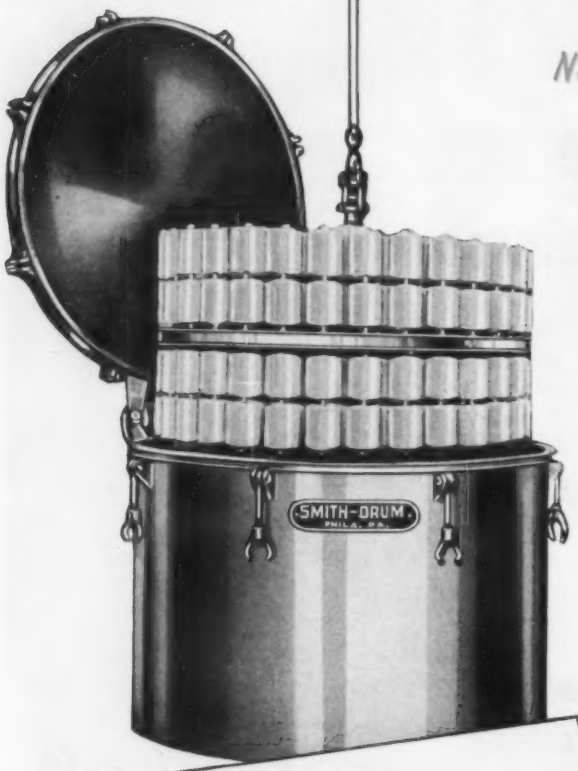
Call your Airtemp Dealer now (he's listed in the Yellow Pages). Or write Airtemp Division, Chrysler Corporation, Dayton 1, Ohio, for the name of the dealer nearest you.

Airtemp DIVISION CHRYSLER CORP

AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, INDUSTRY

SMITH-DRUM slashes package extracting-drying time to...

LESS THAN *ONE* HOUR



New **SMITH-DRUM Rapid Package Dryer Makes Tremendous Savings in** TIME . . HORSEPOWER-HOURS . . STEAM . . LABOR.

Here is a new package drying machine that reduces the time required for *extracting and drying* dyed packages to *less than an hour!* Compare that to the time it takes you to extract and dry with your present equipment . . . then figure the savings you could make with this new SMITH-DRUM machine.

Better still . . . let us do the figuring for you. We will be glad to evaluate the exact time on *your* work and to recommend a machine tailored to meet *your* particular requirements and power supply. Write today.

SMITH, DRUM & COMPANY
432 W. Allegheny Avenue
Philadelphia 33, Pa.

New Speed Records Are A Habit With SMITH-DRUM

Since 1939, SMITH-DRUM engineers have been establishing new speed records for drying package yarn. First, from 24 hours to 3 hours . . . and now to *less than 1 hour*. No other manufacturer has contributed so much to lower yarn drying costs!

Southern Sales Representatives:
PARROTT & BALLENTINE
510 S. Carolina National Bank Bldg.
Greenville, S. C.

MONSANTO TEXTILE TALK

EVERGLAZE® COTTON DRESSES BY JOSEPH LOVE

BOTH TYPES OF RESLOOM* GIVE COTTONS A LASTING "WASH 'N WEAR" FINISH!

Which type of resin gives the most effective "wash 'n wear" finish to cottons? The controversy is raging—what is best for you?

If you favor a melamine resin, Monsanto recommends *Resloom HP* or *M-75*. If you prefer a cyclic-urea formaldehyde resin, Monsanto offers *Resloom E-50*. Both types of resins are compatible, and subtle yet significant changes in the finish for your cottons can be obtained through the use of a "blend." To determine what is best for your application, call on Monsanto—the only producer of cyclic urea and melamine-type resins.

Reslooms are outstanding in imparting dimensional stability and wrinkle recovery. Both types are remarkably durable. They do not wash or dry clean out of fabrics.

Unlike ordinary finishes, Resloom resins do not coat the surface. They are deposited inside absorbent fibers where they actually modify fiber characteristics.

A Monsanto representative will be glad to work with you on technical problems relating to "wash 'n wear" finishes. Write Monsanto Chemical Company, Plastics Division, Dpt. TW-11, Springfield 2, Massachusetts.

It pays to finish fabrics with durable

RESLOOM *TEXTILE RESINS*

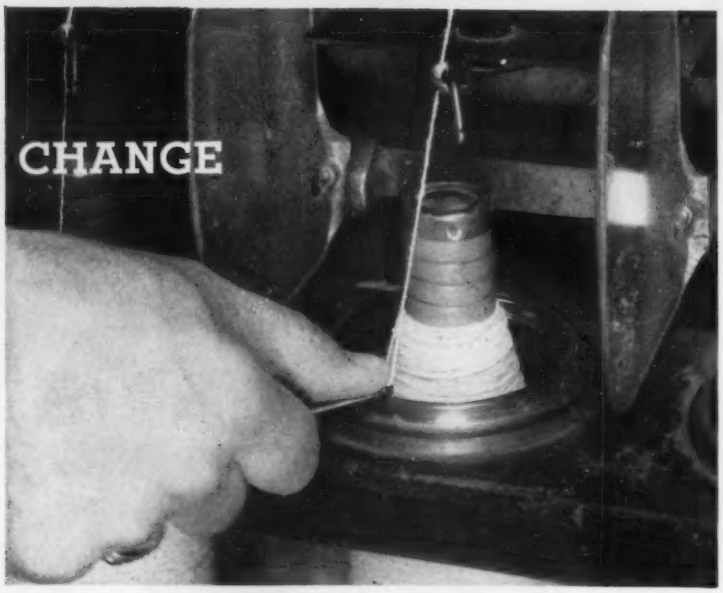
MONSANTO

RESLOOM: REG. U. S. PAT. OFF.

But, Mr. Woolen Manufacturer,

A TRAVELER CHANGE

is easy to make



and it may be ALL that's needed

If your work is not running just the way it should . . . or if you're going to change to larger packages or different fibres or blends . . . bear in mind that a traveler change is the easiest change in your whole process. It's an obvious thing to try first. 'Phone your U. S. Representative. He may have a slant that will help . . . he does have the finest travelers produced. All of the U. S. mill background and textile experience is at your service. Call on U. S., count on U. S.

U. S. Representatives are at your service.

R. V. BORDEN, W. H. ROSE
Greenville, S. C. Box 1048 Phone 3-0915

H. J. SMITH
Providence Box 1187 GAspee 1-0100

O. B. LAND
Athens, Ga. Box 1187 LIberty 6-1647

L. H. MELLOR, JR.
Mid-Atlantic States, 123 Tready Rd.
Drexel Hill, Pa. HIlltop 6-1563

H. R. FISHER
Concord, N. C. Box 83 Phone 2-8930

U. S. RING TRAVELER CO., 159 Aborn St., Providence, R. I.
Southern Warehouse: Greenville, S. C.

A Style and Size for Every Yarn and Fibre

Packaged to Arrive

and Keep Perfectly

But, Mr. Woolen Manufacturer,

You don't have to "live with" STATIC

Now with NOPCOSTAT® 56-C you will discover a wool oil with "built-in" anti-static properties PLUS detergency for easiest scouring

NOPCO

PLANTS: Harrison, N. J.
Cedartown, Ga. • Richmond, Calif.

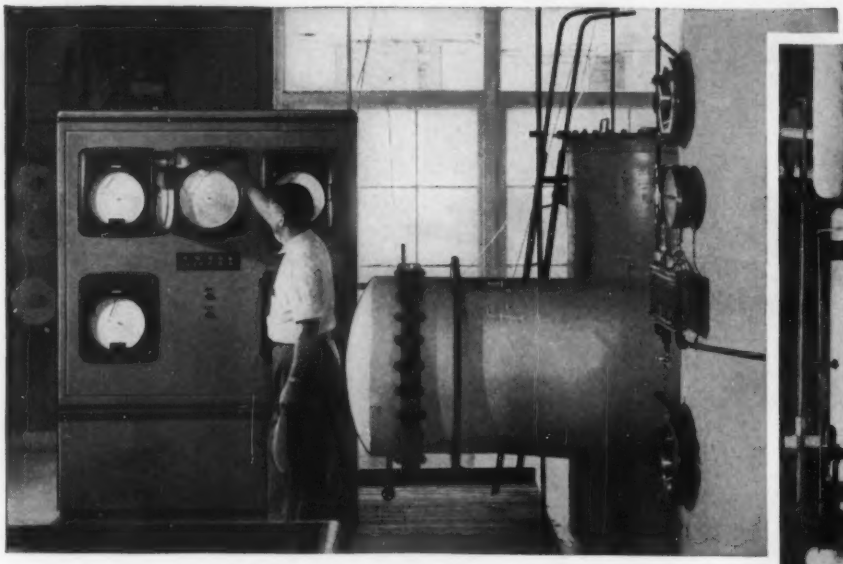
Many companies often make extravagant claims for their wool oils. Nopco doesn't believe in extravagant claims. But if you are one of the many woolen manufacturers who have been assuming that static is something you just have to live with—since you can't eliminate it economically—we're sure you have everything to gain by trying our new wool oil, Nopcostat 56-C.

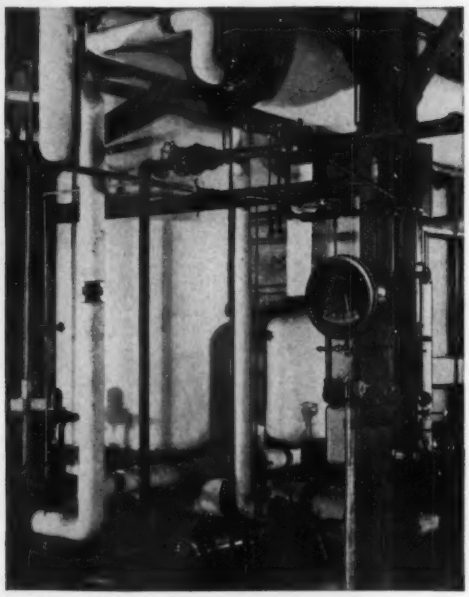
Nopcostat 56-C is a wool oil about which we are, truthfully, extremely optimistic. The combination of built-in anti-static qualities for trouble free running *PLUS* supplemental detergent action for optimum finishing and fine, clean fabrics put Nopcostat 56-C in a class by itself.

But what we *say* about Nopcostat 56-C won't really convince you. One trial in your mill will, we are sure, prove to you that our great enthusiasm for this new wool oil is well deserved. Make us prove it!

Nopco Chemical Co.,
310 Fuller St., Harrison, N. J.

Get Real Caustic Economy with AUTOMATIC EVAPORATOR CONTROL





Installation at one of American Thread Company's plants, designed for Zaremba Evaporators. Careful estimates indicate that this Foxboro Cabinet Control system will pay for itself in less than a year through new, overall economies.

A New Opportunity to Modernize Another Important Textile Process

By adapting the basic principles of successful evaporator control to textile processing, a far more efficient means of reclaiming caustic is made available. Through accurate, coordinated control of variables, this latest Foxboro development improves caustic reclamation three ways . . . it increases evaporator capacity and saves caustic, thus cutting costs; it helps to reduce stream pollution, and it eliminates routine checking, manual controlling and record writing.

Textile Machinery and Mill men worked closely with Foxboro engineers in developing this important new automatic control system. Such cooperation frequently leads to important processing advances and this is no exception. For complete information on the new automatic evaporator control, contact your nearby Foxboro Field Engineer or write, **The Foxboro Company, 8411 Neponset Ave., Foxboro, Massachusetts, U. S. A.**

5 OUTSTANDING FUNCTIONS

1. *controls caustic concentration automatically by electronic comparison of solution's boiling point to boiling point of water at the same pressure . . . a unique method on Foxboro systems, known as "boiling point rise" control—*

2. *accurately measures steam flow and weak liquor flow to indicate efficiency of evaporators for better maintenance—*

3. *controls liquid level of make-up caustic tanks—*

4. *measures the percent of caustic in steam condensate and condenser hot water leaving evaporator . . . and—*

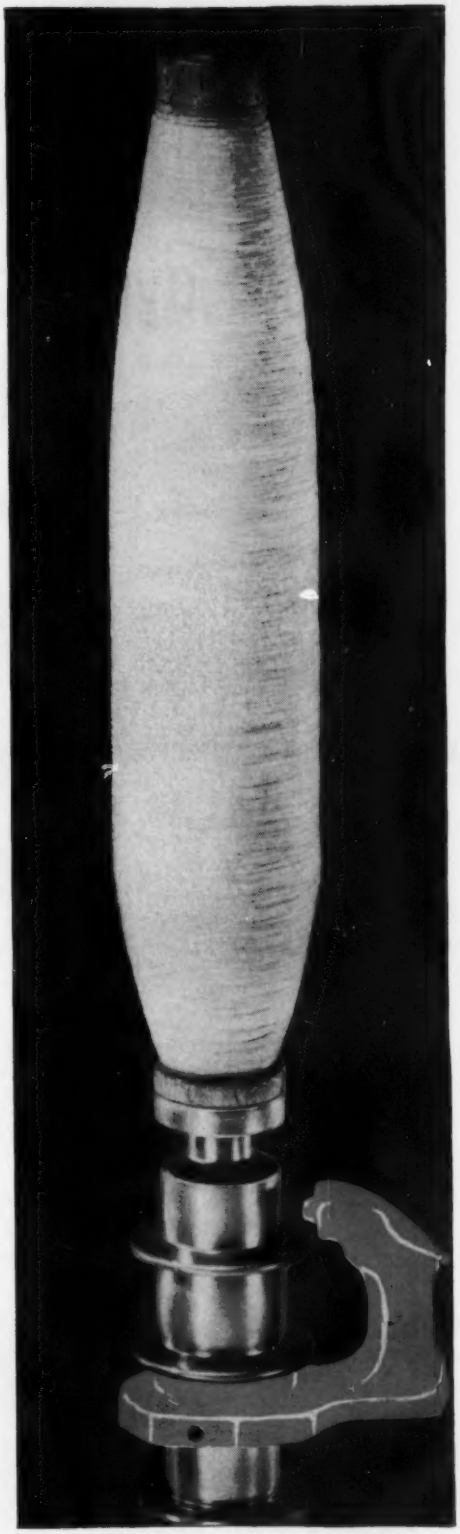
5. *automatically diverts these to sewer if caustic content rises above safe limits.*

FOXBORO
Reg. U. S. Pat. Off.

Process-Improving Controls
FOR THE TEXTILE INDUSTRY

keep spindles spinning clean and true with

Gulfspin



Spindles will stay clean and spin true when you use Gulfspin. This remarkable spindle oil resists sludge formation, holds contaminants in suspension so they do not deposit on spindle parts, and provides effective protection against rust.

You also reduce power costs with Gulfspin. Ordinary spindle oils often thicken after a few months of service, requiring increased power. Gulfspin shows no increase in viscosity after many months of service. You'll find that these advantages add up to smoother spindle operation, fewer ends down, and rock-bottom maintenance and power costs.

Consult the telephone directory for the number of your nearest Gulf office. Then contact a Gulf Sales Engineer and let him prove the superiority of Gulfspin on your frames.

Gulf Oil Corporation • Gulf Refining Company
Pittsburgh 30, Pennsylvania

GULF

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

POSITIVE

FINISHING and INVENTORY CONTROL

from dye order to stock bin location

IBM TEXTILE DEPARTMENT SPECIALIZES IN PUNCHED CARD CONTROL METHODS FOR THE TEXTILE INDUSTRY.

Right from the dye order and greige bale slips, IBM's punched cards give pin-point control of each cut of cloth through every in-process production step—to its exact bin location! These same IBM cut cards automatically prepare production figures, finishing loss or gain, and quality analyses. From them, invoices and bills of lading are also prepared.

IBM punched cards are "working" documents containing all vital production and inventory data. Processed through IBM equipment, these cards are automatically arranged, listed and tabulated into accurate, weekly inventory position reports. Now you can have the up-to-date information you need to plan production against sales . . . to give you a competitive advantage in today's fast-moving markets!

IBM has experience in the development of new and economical machine accounting methods for mills. Traditional IBM reliability is your assurance of expert service as well as the finest of data processing equipment. For complete details for *your* mill operation, contact your local IBM representative, or write: TEXTILE DEPARTMENT, International Business Machines Corporation, 590 Madison Ave., New York 22, N. Y.

IBM® DATA PROCESSING

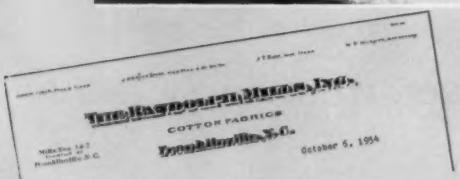
WORLD'S LARGEST PRODUCER OF DATA PROCESSING MACHINES

Mount Hope SYSTEM

THE RANDOLPH MILLS, INC.

definitely increased output, found quality standards easier to maintain!" says President John W. Clark

"Highly profitable!" Mr. Clark, at right, reviews Mount Hope System with William L. Carter, Technical Engineer and Purchasing Agent.



The Randolph Mills, Inc.
COTTON FABRICS
Franklinville, N. C.
October 6, 1954

Dear Mr. Robertson:

Mount Hope equipment in our mills at Franklinville definitely increases our output, and has done so to an appreciable degree ever since its successful installation in January, 1954.

It should be noted especially that this increased production is achieved without loss of quality. In fact, the Mount Hope devices make it easier to maintain good quality standards, as evidenced by the fact that seconds are considerably reduced.

Work loads are also reduced, to the satisfaction of both personnel and management. We are convinced by the facts that adoption of Mount Hope handling equipment has been highly profitable to Randolph Mills.

Sincerely,

RANDOLPH MILLS, INC.

John W. Clark

John W. Clark
President

JWC:lpb

GET THE FACTS NOW! Start savings in your plant promptly — to strengthen your competitive position. Call your Mount Hope Representative — or have us survey your plant.

MOUNT HOPE
MACHINERY COMPANY
15 FIFTH STREET, TAUNTON, MASS.

Originator of Modern Expanders Leader in Cloth, Paper & Plastic Handling
SOUTHERN REPAIR SHOP • CHARLOTTE, N. C.

NON-FLUID OIL

TRADE MARK REGISTERED

TOPS FOR LOOMS!

Drip-spatter-leak! Ordinary liquid oils do just that—onto warps—goods—floor. The result: High seconds, higher oil cost, highest application costs.

NON-FLUID OIL stays in loom bearings lubricating until entirely consumed.

Send for free testing sample of A-#00000 grade NON-FLUID OIL for general oiling of looms to prove this..

NEW YORK & NEW JERSEY LUBRICANT CO.

292 Madison Ave., New York 17, N. Y. **Works: Newark, N. J.**

Southern District Manager: Lewis W. Thomason, Jr., Charlotte, N. C.

WAREHOUSES: Birmingham, Ala., Atlanta, Ga., Columbus, Ga., Charlotte, N. C., Greensboro, N. C., Greenville, S. C., Chicago, Ill., Springfield, Mass., Detroit, Mich., St. Louis, Mo., Providence, R. I.

***NON-FLUID OIL* is not the name of a general class of lubricants, but is a specific product of our manufacture.**

Now Available

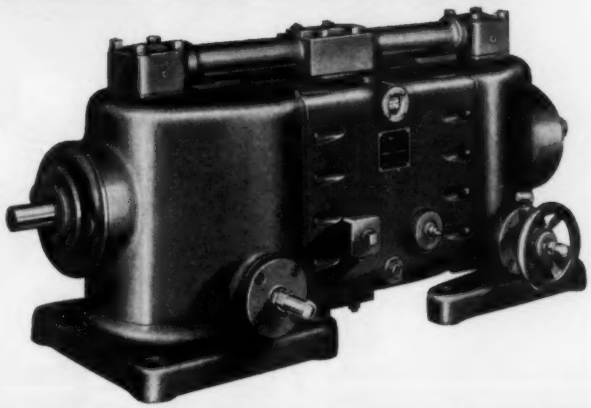
BETTER products FASTER

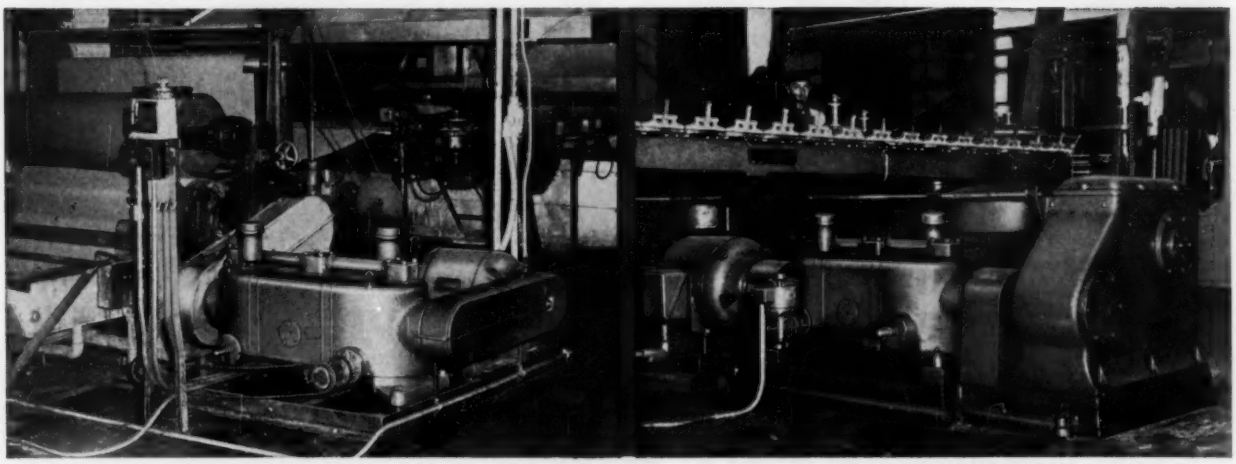
When Your Textile Machinery has

VICKER Variable Speed Hydraulic Transmissions

Extreme precision of control and phenomenally low maintenance are among the characteristics which make Vickers Hydraulic Variable Speed Drives so desirable on textile machinery. Infinitely variable and stepless running speeds, selective creep speeds, automatic overload protection, independent adjustment of acceleration and deceleration and automatic maintenance of tension, are other advantages you get with Vickers Hydraulic Equipment.

Note applications below and then ask our nearest Application Engineering Office for a copy of Textile Bulletin 54-66.





VICKERS HYDRAULIC PAD DRIVE

This machine has operated six years without maintenance except periodic oil changes. Superior speed control is obtained from dancer roll signal through chain and sprocket arrangement. Stepless speed selection is infinitely variable from zero up to maximum. Controlled acceleration and deceleration rates are positive and smooth. Variable horsepower generator characteristics keep power input down to requirements of machine under all load conditions.

VICKERS HYDRAULIC TENTERING FRAME DRIVE

Easily adjustable tension is accurately maintained automatically. Speed variation is stepless and infinite from zero to maximum while creep speeds are selective instead of fixed. With this drive the machine does better work faster with complete dependability.

VICKERS
INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
1588 OAKMAN BLVD.
DETROIT 32, MICH.

Application Engineering Offices: • ATLANTA CHICAGO • CINCINNATI • CLEVELAND DETROIT • HOUSTON • LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA WASHINGTON • WORCESTER

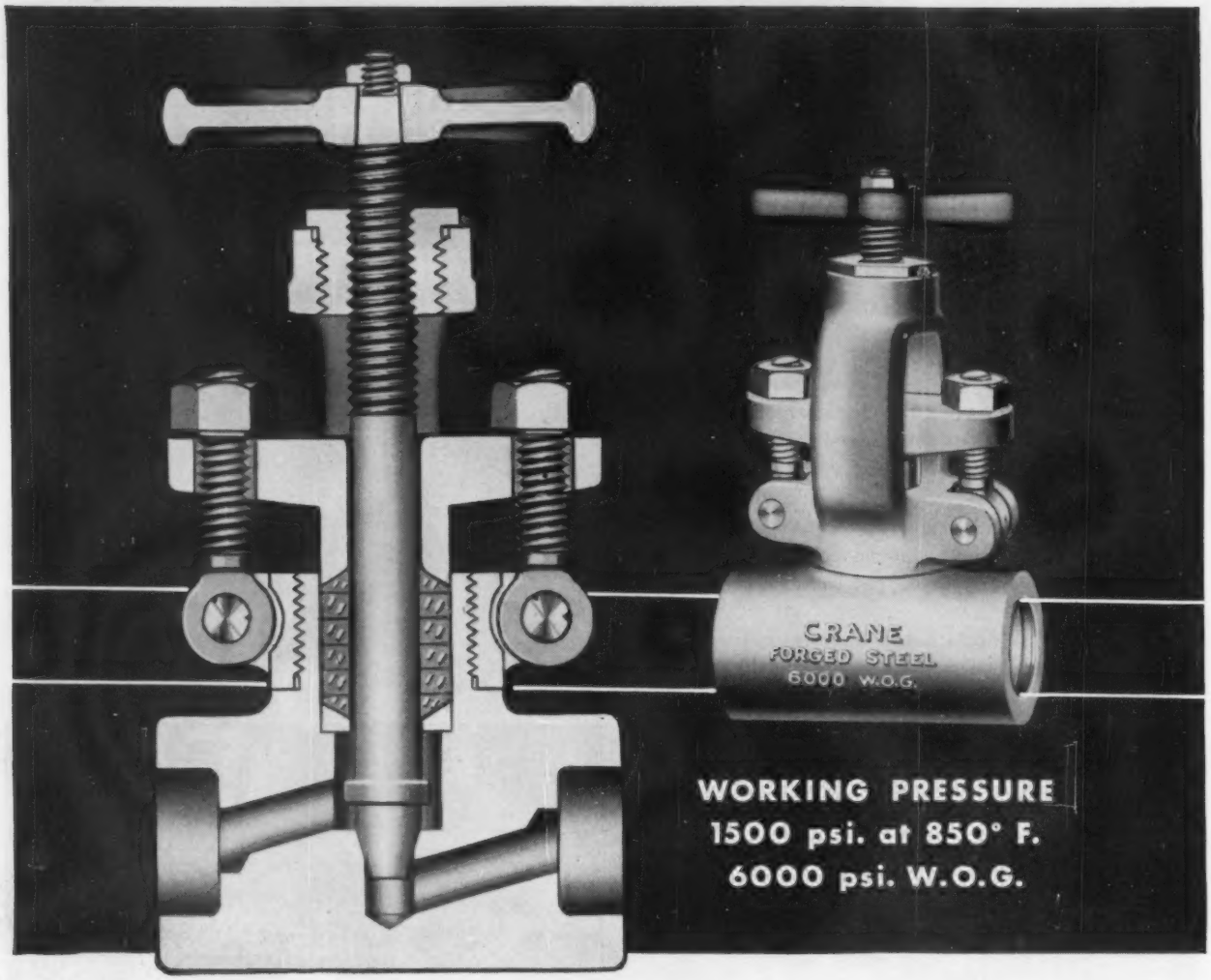
IN CANADA:
Vickers-Sperry of Canada, Ltd., Toronto

FOR FURTHER INFORMATION *Ask For* BULLETIN 54-66

Z249

Engineers and Builders of Hydraulic Equipment Since 1921

Now Available



New Crane Forged Steel Instrument Valves

Been looking for an exceptionally rugged, compact, and low-priced stop valve for your small hydraulic or high-pressure, high-temperature instrument lines?

Crane has developed it—sizes ¼", ⅜" and ½", in both screwed and socket-welded patterns. It's the all-new Crane Forged Steel Instrument Valve, and you can specify it now for immediate delivery.

Will Handle Many Services

Note closely the over-all design and construction shown above of this new Crane valve. Oversized stuffing box—heavy-duty Crane Exelloy stem with integral disc—bolted gland—swinging gland eye bolts—outside screw and yoke construction—all add up to the high performance and low maintenance you want in a valve for your instrument panels, orifice meters, bypass and gauge lines, regulator leads, and other hydraulic and high pressure/temperature lines.

Literature on Request

These rugged, low-cost stop valves are built for 1500 psi. at 850° and 6000 psi. W.O.G. Construction and materials are job-engineered by Crane experts—backed by a century of quality manufacturing, matchless experience. You'll want complete information on the all-new Crane Forged Steel Instrument Valves. Contact your Crane Representative, or write to Crane Co., General offices, Chicago 5, Illinois—Branches and Wholesalers serving all industrial areas.

CRANE CO.

VALVES • FITTINGS • PIPE
KITCHENS • PLUMBING • HEATING

CRANE'S FIRST CENTURY...1855-1955

Now you need

ONLY ONE GREASE

to handle practically every grease job in your plant!

Improved POCO HT Grease

is ideally suited for applications subject to extreme temperatures, moisture, speed and load. Here's why:

- It has a higher melting point than most special "high temperature greases".
- It can be pumped at temperatures as low as –20° F.
- It lubricates completely under conditions of moisture or water.
- It has higher oxidation stability for longer life on the job.
- It provides extremely high protection against rust and corrosion.

Let your local Pure Oil representative tell you how improved POCO HT can cut lubrication costs for you. This may be the only grease you need in your entire plant. Why not call now and find out?

Now it's easier than ever to

"Simplify and Save"

With improved POCO HT headlining Pure's *Multi-Purpose* lubricants, you can now save more than ever with Pure's "Simplify and Save" Plan. Find out how it will work in your plant. Write for full literature. The Pure Oil Co., 35 E. Wacker Dr., Chicago 1, Ill.

Be sure with Pure

PURE

PURE MULTI-PURPOSE LUBRICANTS

Sales offices located in more than 500 cities in Pure's marketing area.

"Fletcher narrow fabric looms far exceed our expectations in productivity & low cost operation"

Why not do as Sullivan-Southern did—specify Fletcher Looms for higher speeds and higher efficiencies.

Fletcher narrow fabric looms are built in different lengths and have several styles of battens, let-offs and harness motions. Call or write for a Fletcher Sales Engineer today. He will describe the operation of Fletcher Looms and the many money and time-saving features built into them. Remember, Fletcher is the world's largest specialist in the manufacture of narrow fabric looms.

FLETCHER WORKS

213 GLENWOOD AVE. **PHILADELPHIA 40,** ESTABLISHED • 1850

our newest arrival

Synthrapol® KB

A new and different 97% active non-ionic surface-active agent for use in the wet processing of textile yarns and fabrics.

Combines —

- Exceptionally good detergency
- Excellent solubility
- Extremely fast wetting action
- Economy in operation

ARNOLD, HOFFMAN

PROVIDENCE, RHODE ISLAND
Associated with Imperial Chemical Industries Ltd., London, England

ARNOLD, HOFFMAN & CO., INCORPORATED • EST. 1815 • PROVIDENCE, R. I.
Offices and Technical Service Laboratories:
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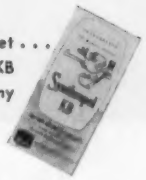
AHCO PRODUCTS

Send for this booklet . . . Describes Synthrapol KB in detail; suggests many textile applications.



Arnold, Hoffman & Co., Inc.
55 Canal St.
Providence 1, R. I.

Please send me a copy of your new Synthrapol KB Booklet

Name and Title.....

Firm Name.....

Address.....

City..... *State*.....

 For more information, write direct or use Reader-Service post card.

Here is an

immediate opportunity

for

PROFIT

The Proctor & Schwartz

loop ager for printed fabrics

.. PAYS FOR ITSELF IN ONE YEAR
.. REPLACES 5 ROLLER AGERS
.. REQUIRES ONLY 2 MEN PER SHIFT
.. VIRTUALLY ELIMINATES AGEING "SECONDS"

The Proctor & Schwartz Loop Ager has been proven to pay for itself quickly—often yielding profits equal to original investment in a single year. Completely outmoding existing units, this advanced system for ageing vat dyed print goods does the work of five roller agers, cuts floor space needed in half, and eliminates ageing re-runs. One installation saved $45,000 per year in direct labor alone, with savings in dyestuffs, glycerine and steam exceeding this amount. Standard sizes range from 2 to 7 units—supplying outputs from 27,000 to 95,000 yards per shift. Proctor engineers will be glad to make recommendations for the exact equipment to meet your particular production requirements. Write for information.

PROCTOR & SCHWARTZ EQUIPMENT FOR THE TEXTILE FIELD

- Automatic Blending Systems
- Weighing Feeds
- Pickers
- Shredders
- Bale Breakers
- Synthetic Cards
- Garnetts
- Dryers For Fibrous Material
- Yarn Dryers
- Hot Air Slasher Dryers
- Cloth Carbonizers
- Roller Dryers And Curers
- Loop Agers For Print Goods
- Tenter Housings
- Open-Width Bleach Systems For Woven Fabrics
- Multipass Airlay Dryers
- Nylon Setting Equipment
- Con-O-Matic Washers
- Continuous Bleach Systems For Producing Tubular Knits
- Equipment For "Sanforized"® Shrunk-To-Fit Fabrics
- Carpet Dryers

*Reg. U.S. Pat. Off.

Proctor

PROCTOR & SCHWARTZ, INC.

Manufacturers of Textile Machinery and Industrial Drying Equipment • Philadelphia 20, Pa.

Confidence in STEEL HEDDLE PRODUCTS

Even Upon Closest Scrutiny . . . A Confidence Built on Years of Quality, Research, Engineering and Integrity

Pioneering today as in 1898 and known the world over by the trade names

Stehedco and Southern

Steel Heddle Mfg. Co. wishes to express its gratitude for the faith shown by all Textile Mills since the company's very beginning.

Due to this solid, rock-like confidence in the ability, craftsmanship and resulting Quality Products, Steel Heddle Mfg. Co. today has the most modern facilities at your disposal.

It will always be our policy to give our best in Research . . . Engineering . . . Equipment . . . in material and finished product for you who have always had faith in us.

Steel Heddle invites you to make use of their staff of Field Engineers. Conveniently located, there is one in your particular territory.

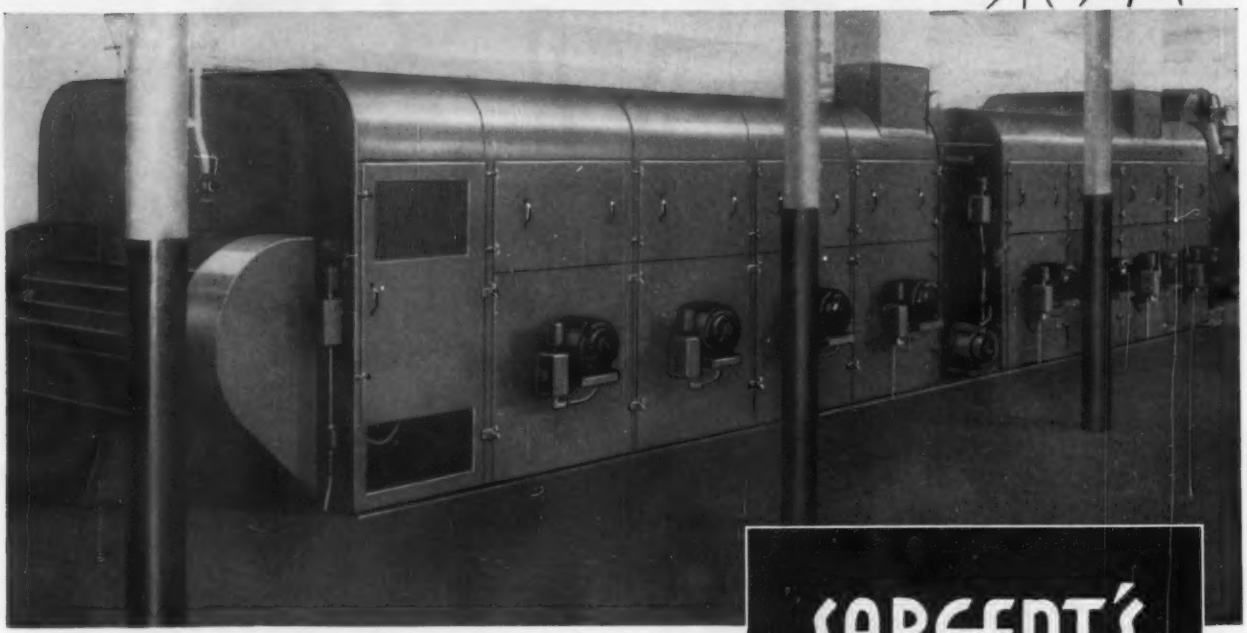
STEEL HEDDLE MFG. CO., 2100 W. Allegheny Ave., Phila. 32, Pa.
SOUTHERN SHUTTLES Paris Plant . . . Greenville, S. C.
A Division of STEEL HEDDLE MFG. CO.
STEEL HEDDLE COMPANY OF CANADA, LIMITED
310 St. Hubert Street • Granby, Quebec, Canada

Other Plants and Offices: Greenville, S. C. • Atlanta, Ga. • Greensboro, N. C. • Providence, R. I. • Textile Supply Co., Dallas, Texas • Albert R. Breen, Chicago, Ill.

Stehedco and Southern
WORLD FAMOUS TRADE MARKS OF THE
Steel Heddle
Mfg. Co.

R-11

The Simplest, Most Compact Downdraft Dryer Ever Built!



SARGENT'S SINGLE APRON DRYER

ANY FIBRE • ANY BLEND

LEADER IN ITS FIELD FOR . . .

PHENOMENAL PRODUCTION — per sq. ft. of conveyor drying area . . . continuous, automatic, trouble-free, economical operation — year in, year out . . . takes amazingly small floor space.

SIMPLICITY OF DESIGN AND OPERATION — easy to assemble . . . curved top provides continuous air flow (no corners to "pocket" air currents) . . . adds to compact, streamlined appearance . . . high velocity fans of latest design directly connected to standard-frame ball-bearing motors . . . so placed there is continuous cool-air-flow around them . . . vibration-free . . . heavily insulated, rugged housing . . . NO HEAT LOSS.

ACCESSIBILITY — quickly, easily cleaned . . . least down-time between lots . . . inspection panels conveniently placed, easily removed for inspection of work in process.

LOW STEAM CONSUMPTION — ingenious arrangement of coils, screen-protected . . . thermostatic controls . . . all add up to minimum operating cost. Designed for either low or high pressure steam.

WONDERFULLY QUIET OPERATION — s-m-o-o-t-h conveyor to carry fibres at all speeds . . . built of heavy-gauge steel sectional flights . . . variable speed, covered chain drives . . . Fisher-type rotary feed.

Let us show you . . .
how this Dryer will cut your costs. Please write your nearest representative, or write us direct, for complete details.

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
CINCINNATI 15 — A. L. Merrifield, 730 Brooks Avenue
CHARLOTTE, N.C. — W. S. Andersen, Carolina Specialty Co.
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TORONTO, CAN. — Hugh Williams, 47 Colborne Street

MOLLISAN

WIDENS THE SCOPE OF YOUR FINISHES

New textile lubricant and softener strengthens resin-finished fabrics; effective anti-static agent for synthetics

Unusual in its versatility and effectiveness as a non-ionic lubricant and softener, MOLLISAN offers an extraordinarily wide range of highly advantageous textile finishing applications.

MOLLISAN-treated fabrics are outstanding in their resistance to yellowing and resin embrittlement at even the highest temperatures. MOLLISAN greatly increases tear and abrasion resistance, sewability, hand and appearance in resin-treated fabrics. With synthetics, it has proven itself an exceptionally effective anti-static agent.

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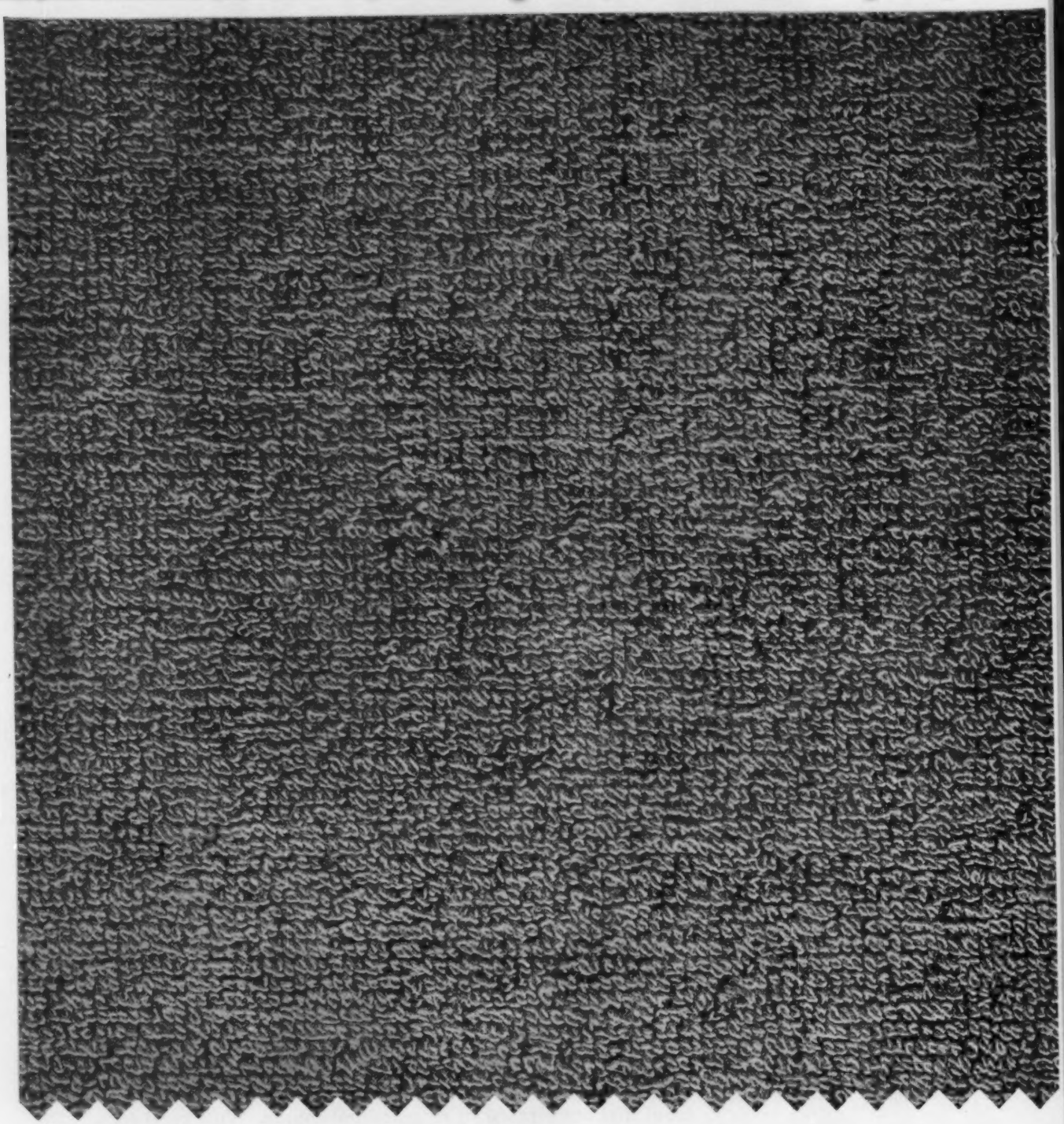
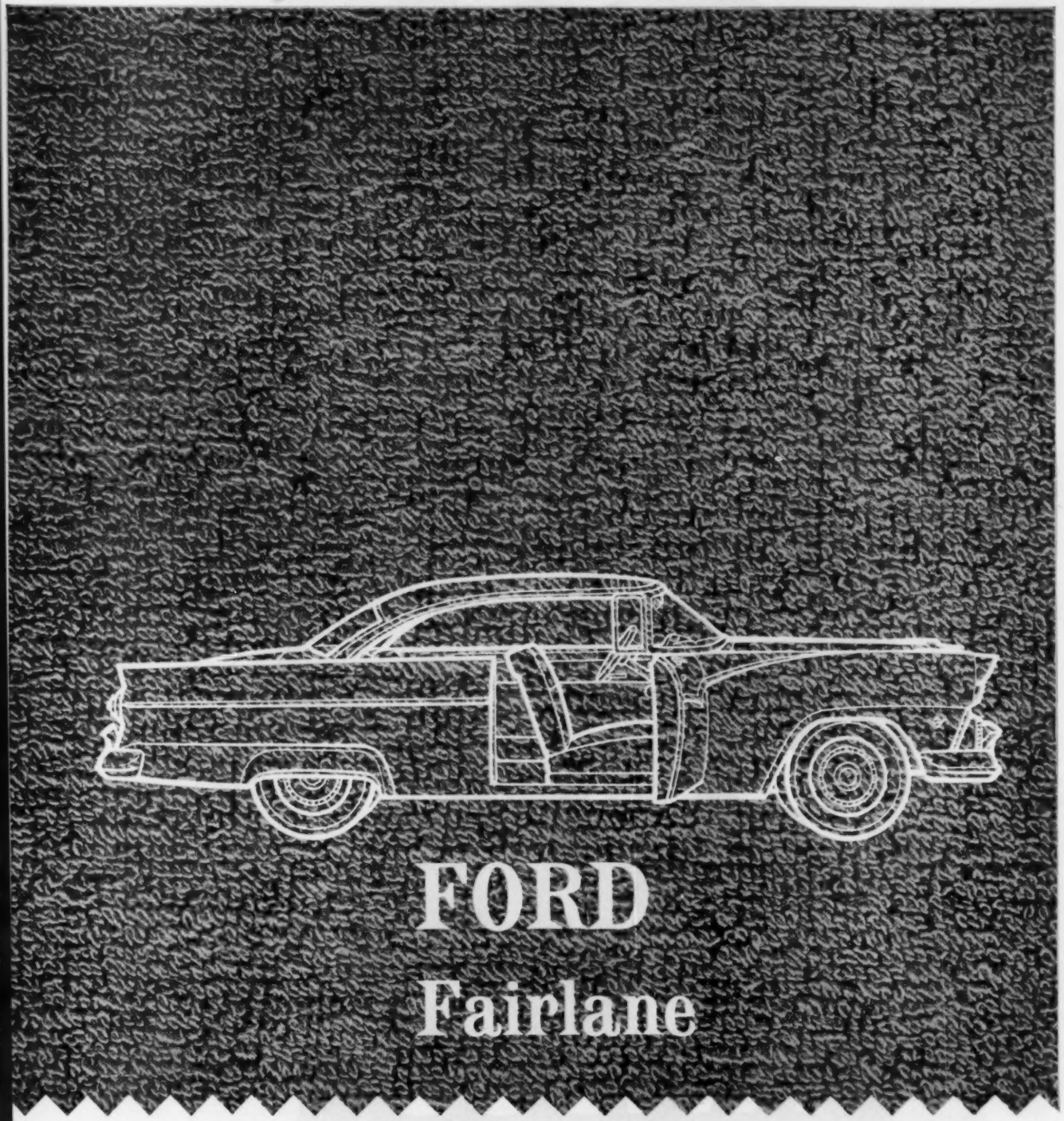


carpeting... a blend using
by Masland and by Mohawk



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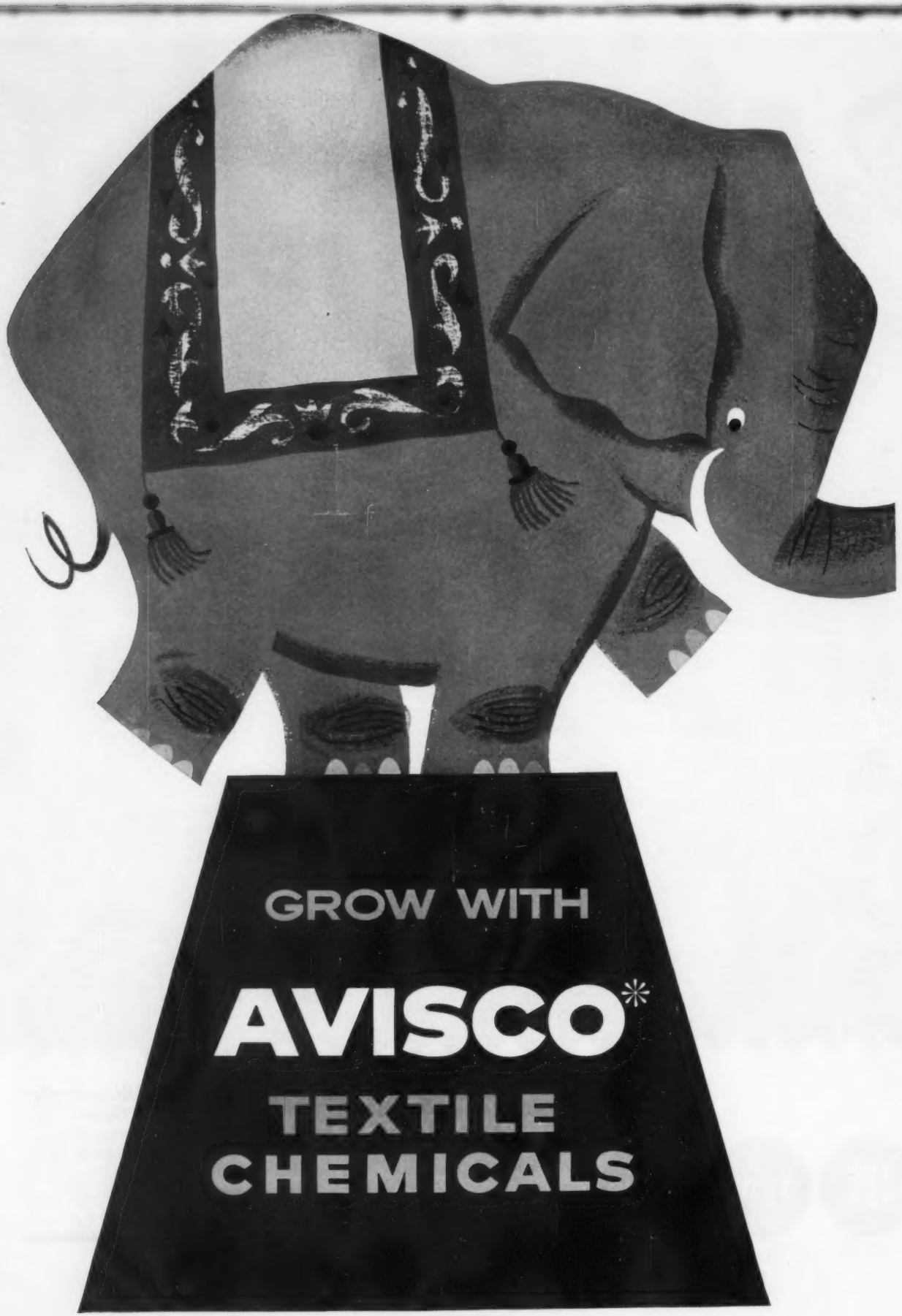
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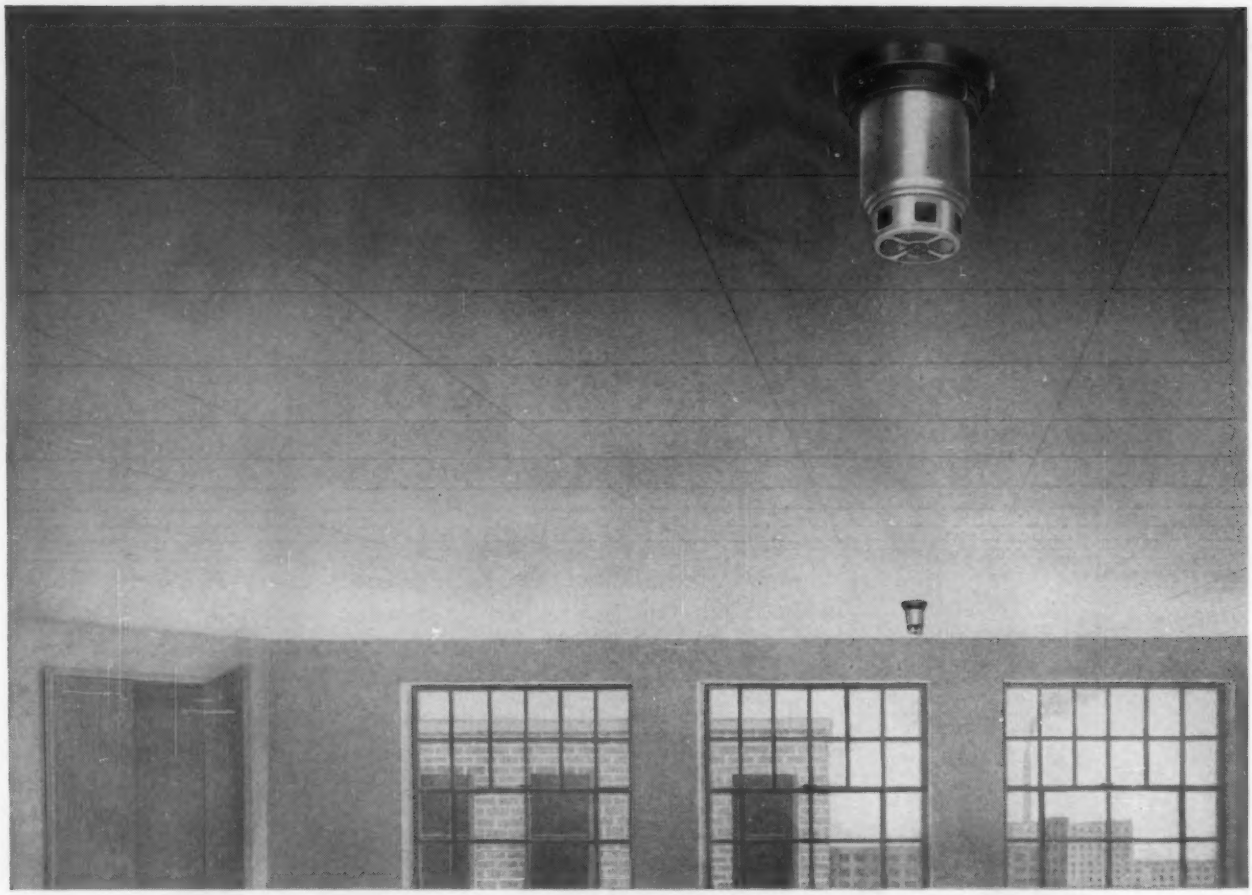
With that accomplished, growth—for you and for our Avisco staple and yarns—accelerates rapidly! We'd like very much to have a talk with you. Write or telephone Textile Chemical Sales, American Viscose Corporation, 1617 Pennsylvania Blvd., Philadelphia 3, Pa.

AVISCO TEXTILE CHEMICALS

*Avisco is the trade mark of American Viscose Corporation

New, radio-active, automatic fire guard!

C-O-TWO PRE-DETECTOR SYSTEM



Each pre-detector head protects up to 3,600 square feet of area... harmless radio-active element utilizing ionization chamber principle quickly detects all forms of fire... requires only simple two-wire circuit and insignificant wall space for controls.

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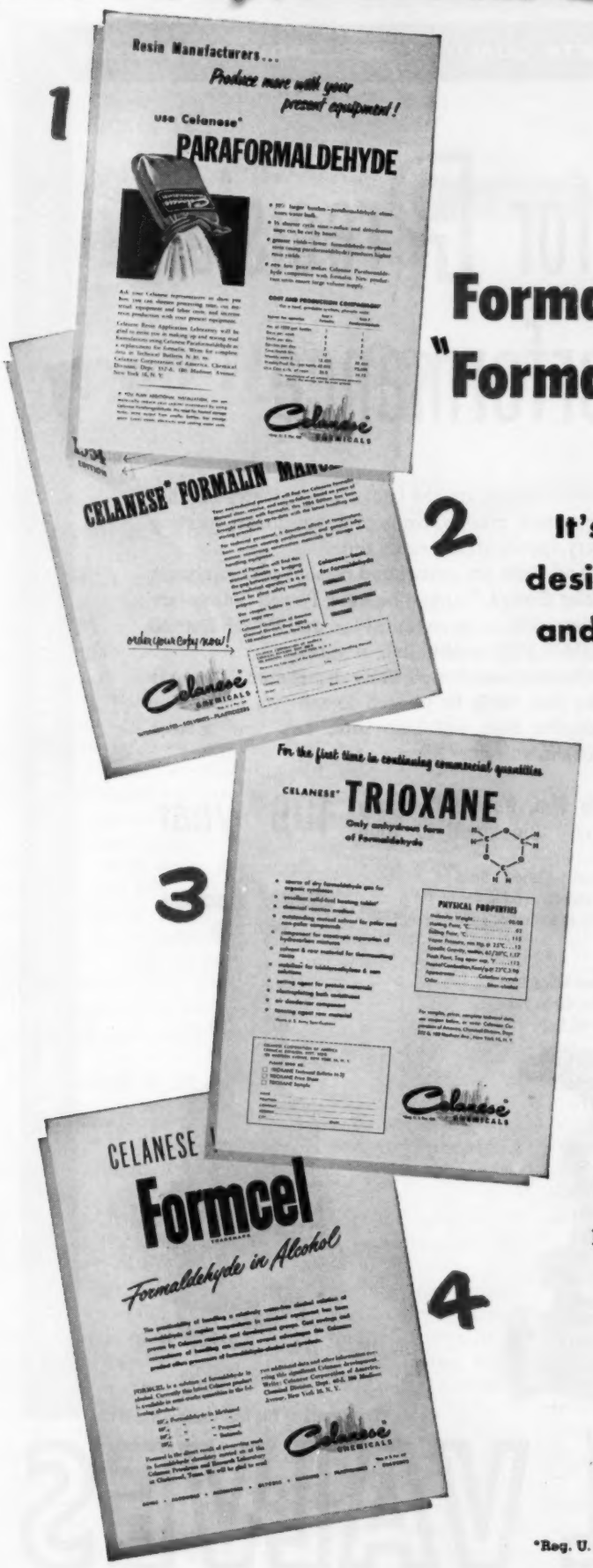

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It's one of 4 specialized types—designed to meet specific needs—and only Celanese supplies all 4

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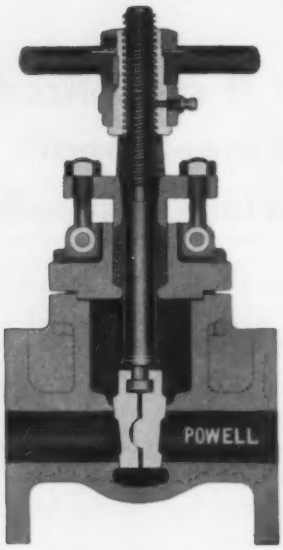

Powell Valves are the choice of engineers because they know every valve is precision made, meeting every specification—every time.

And there are other good reasons why engineers prefer Powell Valves—because Powell Valves are dependable . . . economical . . . and Powell has the COMPLETE quality line of valves.

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The Wm. Powell Company
Cincinnati 22, Ohio... 109th year

FIG. 2495 (Sectional)—Stainless Steel O. S. & Y. Gate Valve for 150 Pounds W. P. Double Wedge Disc is accurately guided to seat.

FIG. 375—Bronze Gate Valve for 200 Pounds W. S. P.

FIG. 150—Bronze Vulcanized Composition Disc Globe Valve for 150 Pounds W. S. P.

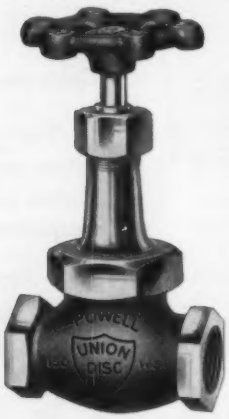

FIG. 2193—Large Ni-Resist* Gate Valve for 200 Pounds W. O. G.

*Trade-mark of The International Nickel Co.

POWELL VALVES

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The LONG-RANGE VIEW

Japan Has Struck

The most striking example of sheer greediness we've ever heard about was the opening of the Cherokee Strip, part of Oklahoma, to land-hungry American whites. The Cherokee Indians, defeated in Alabama, had been boxed in on the Strip; then later that land, too, was wanted by the whites. The Indians were moved off, in violation of a treaty, and the Strip opened to the grabbers. For weeks, the greedy ones came, hovering in tents, huts, and wagons on the edge of the Strip, waiting for the deadline set for the gorge. When the signal gun went off, they raced madly, gleefully into the Strip to satisfy their lust for land.

Such a display of greed has just been perpetrated on the U. S. textile industry by Japan and U. S. importers.

On September 10, the U. S. government again threw a rich carcass to the wolves, this time the U. S. textile market. And again the greedy ones were hovering, ready for the kill. All summer, after the government's announcement on June 9 that the carcass would be exposed on September 10, fangs were sharpened. By deadline, a flood of goods was ready and waiting. In August alone, more textile goods were sold by Japan to U. S. buyers than during all of 1954. The same thing happened again in September.

How Serious Is It?

We have been asked several times just how serious the threat to the U. S. textile industry is. There seems to be a wide impression that the industry is only crying "Wolf!"

On p. 84, we publish statements by officials of NTA and ACMI that give some indication of the seriousness of the Japanese threat.

There are several ways of measuring the impact. Mr. Chace of NTA states that in August and September more goods came in from Japan than all the mills of New England produced. Another textile man some time ago estimated that the jobs of 17,000 U. S. textile-mill workers will be wiped out.

Recently, we estimated the number of U. S. mills required to produce a volume of goods equal to Japanese imports. Roughly, a 40,000-spindle mill producing medium-weight goods will turn out about half a million yards of cloth a week (three shifts, 40 hours). Last year, Japanese goods sold in the U. S. amounted to about two such mills. At the August and September 1955 rate of imports, 24 U. S. mills of about 40,000 spindles will be put out of business.

However, that is only half the damage. A flood of wearing apparel is also coming in. Besides the direct loss of business to U. S. garment manufacturers, the textile goods used to make these garments will not be bought from U. S. mills. Mr. Winget of ACMI estimates that garment sales from Japan may hit $9-million this year. So to the 24 mills out of business as a result of Japanese shipments we have to add perhaps several mills that have lost the garment trade.

What Next?

At the annual meeting of the Northern Textile Assn. in late September, Speaker of the House Joe Martin blandly stated that Eisenhower had said, "We are not going to kill off a great American industry that employs 1½-million people."

Well, what does that mean? So long as one 5,000-spindle novelty-yarn mill or one cutter-and-sewer is left, the politicians can unctuously say the industry is not dead. If the U. S. remains prosperous, they can say, like so much of New England is now saying, "It's a good loss."

No matter what they say, the fact is that they are now in the act of throwing another textile carcass to the greedy ones. As pointed out on p. 84 the government is going to offer up the woolen, worsted, silk and synthetics markets to Japan in another Geneva abortion.

Last year at a "briefing" in the U. S. State Dept., we heard from the horse's mouth the cold-blooded attitude of that department. In bleak, unmincing words, the State Dept. says in effect: "We keep books on the U. S. economy. We know how much of it we can use up to attain our ends."

So far, we have not been able to see the page on the textile industry. Our considered judgment is that the State Dept. has the textile industry tagged as a sacrificial goat.

A. M. Thomas

60% of the mills liquidated in the United States during 1954 were operating exclusively with pre-war full-fashioned knitting machines.

Textile Machine Works 1954 Statistical Survey

In the hosiery industry, the one unyielding force is obsolescence. Compare the production of your least efficient machinery with a "Reading 100" Full-Fashioned Knitting Machine—in courses per minute, dozens per hour, salability of fabric. With every Reading Machine you get the benefit of Textile Machine Works' engineering help, service and technical experience. Write us.

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30 Sections

51, 60, 66, 75 Gauge

Automation Creates Jobs For Workers With Skills

There is new and reassuring information for those who fear that "automation" — the control of machines by machines — will mean fewer job opportunities. It comes from a special survey of 1,574 companies in metalworking industries recently completed by AMERICAN MACHINIST, a McGraw-Hill publication. More than one-fifth of the companies reported that they already have automatic loading, transfer or assembly machinery in operation. In these companies as a whole there has been a net increase in total employment since this machinery was installed.

According to the AMERICAN MACHINIST survey, of these companies with actual experience in automation

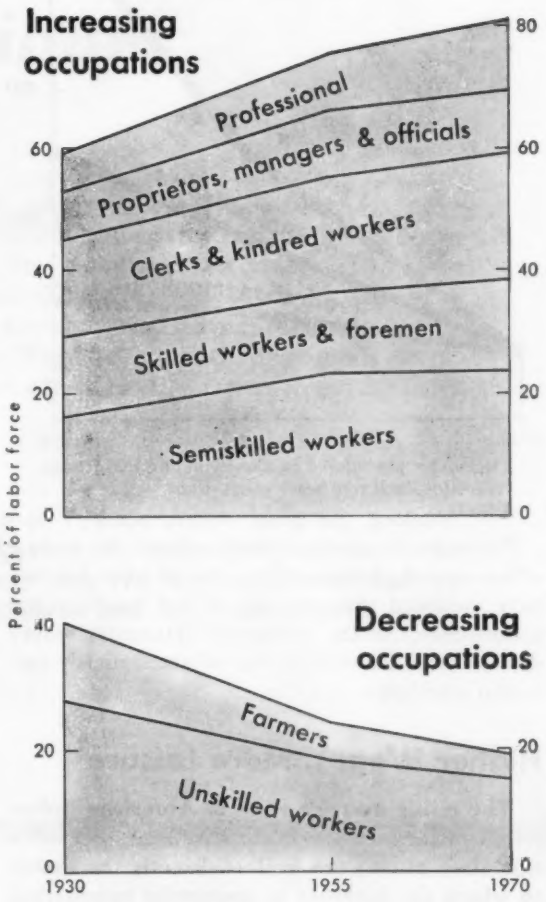
- 26% reported increases in employment averaging 21%
- 51% reported no change in total employment
- 23% reported decreases in employment averaging 16%

More Jobs for the Skilled

Of greater significance, however, is the response by 40% of these companies that they required more skilled maintenance men and by 21% of the companies that they had increased their engineering staffs. This indicates that automation is strengthening a trend already evident in the United States, a trend of expanding opportunity for those with industrial and professional skills and, relatively, of contracting opportunity for the unskilled.

The following chart shows how strong this trend has been over the past 25 years and how strong it may be expected to be over the next 15 years.

There has been a sharp decline in the percentage of unskilled workers in the nation's labor force and a corresponding increase in the percentage of those with varying degrees of skill.

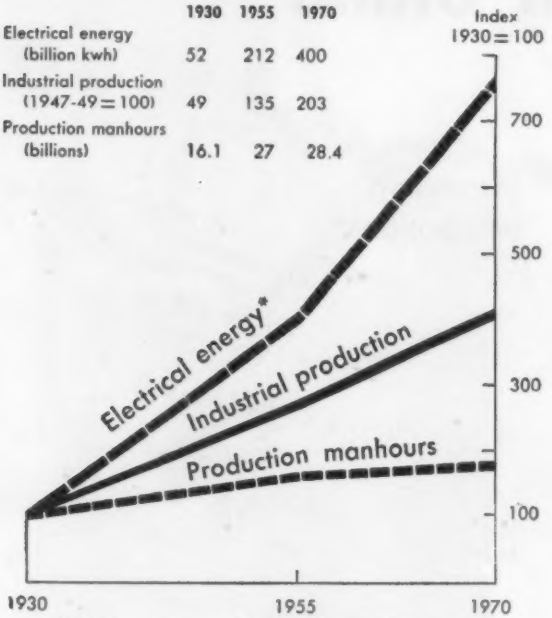


It is possible, of course, to cite cases of individuals and groups that do not conform to the charted trends. Farmers, for example, are becoming at the same time more skilled and less numerous. But this does not upset the broad proposition that opportunities are increasing for those who have skills.

Power and Production

Much of the basic explanation for the relative expansion of opportunities for those with industrial and professional skills lies in the increasing use of power-driven machinery. This has made possible a vastly greater increase in manufacturing production than in the manhours of human labor devoted to it. The following chart shows the relative increases in electrical energy and manhours of labor used in manufacturing since 1930 and the rise in industrial production.

	1930	1955	1970
Electrical energy (billion kwh)	52	212	400
Industrial production (1947-49 = 100)	49	135	203
Production manhours (billions)	16.1	27	28.4

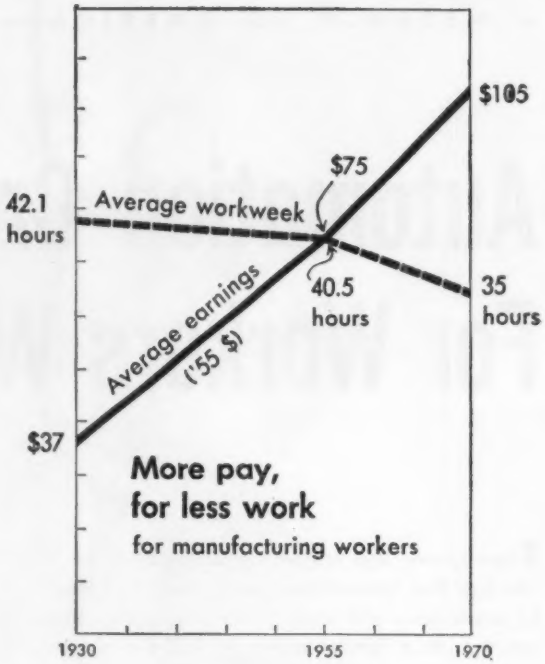


*Excludes power used in aluminum and magnesium reduction, both very heavy power users.

Power-driven machines have reduced the amount of human energy required for physical labor, but they have increased the need for skillful handling and maintenance. As the AMERICAN MACHINIST survey demonstrates, the same is true of automatically controlled machinery.

Higher Wages, More Leisure

The rising average wage of American industrial workers and the decline in hours per week that they must work reflect directly the extent to which the increase in industrial production has outstripped the manhours devoted to it. The final chart shows the increase in weekly wages (in dollars of constant purchasing power) and the decrease in the average workweek in manufacturing since 1930. It also shows the changes that may come in the next 15 years if present trends continue.



There are some who would slow what an earlier editorial in this series characterized as "the continuing process of taking dull and laborious work off the backs and minds of men and transferring it to machines operating in large batteries under automatic control." In doing so, they might make the world safer for those with no skill. The far more constructive course is to welcome the expanding opportunities now being provided and be sure that the nation's young people, who are now starting another school year, are prepared to take advantage of them.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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Donald C. McGraw

PRESIDENT

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Tariff Battle Continues

• Late last year and early this year, the textile industry fought —and lost—a big battle on tariffs on cotton goods. The date set by the U. S. government for opening the flood gates for Japanese imports into the United States was Sept. 10. Almost as soon as that official date arrived, the government issued a second notice of "intention to negotiate" with Japan on wool, silk, synthetics, and most of the other textile items missed in the first round of negotiations.

• A few days later, the Northern Textile Assn. held its annual meeting in New Hampshire. Again, the overriding concern was tariffs. Here in condensed form are the keynotes sounded by officials representing both Northern and Southern textile mills.

"A Serious Blow—"

MALCOLM G. CHACE, JR., chairman of the National Committee, Northern Textile Assn., and president, Berkshire-Hathaway, Inc.

A SERIOUS BLOW was struck at our industry by the Geneva agreement of last June under which tariffs on a large part of our textile production were substantially reduced. This blow came at a time when fabrics from Japan were flowing at an ever-increasing rate into this country. At the same time, our export markets shrank to less than half their postwar size, employment dropped by 160,000, and production in New England was curtailed 33%.

Despite these conditions, our government, at Geneva, agreed to reductions in duties on low-wage foreign goods effective Sept. 10.

The significance of this move can be understood by the fact that in July and August alone the Japanese government figures show that contracts for over 102-million yards of cotton goods alone were validated for export from Japan to the United States, for delivery presumably after Sept. 10. 102-million yards in two months is more than *all* the production of *all* the New England mills in the same period. Even before these reductions, actual imports from Japan in the first seven months of 1955 were well over twice as large as during the same period last year.

But this blow is only the beginning. Last week the State Department announced new lists of items for another Geneva conference. This list picks up much of what was missed at the last Geneva conference. It includes woolen yarns, silk, most of the synthetic fabrics, and a host of other items.

No other course seems possible but to turn our efforts in the direction of securing quota limitations on the imports of textiles. Further tariff concessions must be resisted; and where possible, escape-clause action should be pursued.

Approval by Congress of the Organization for Trade Cooperation must

CONTINUED ON PAGE 186

"Our Worst Crisis—"

A. K. WINGET, president, American Cotton Manufacturers Institute, and chairman of the board, American & Efird Mills.

I FRANKLY BELIEVE we are up against the worst crisis our industry has ever faced. Powerful international interests, teaming up with visionaries in the government, seem set on sacrificing this industry for the sake of so-called free trade.

Actually, they are making a farce of the free-trade ideal as far as textiles are concerned. The American industry is tied to fixed commitments in two items, raw materials and wages, that make up 80% or more of our manufacturing costs.

Official government figures prove this. The Department of Agriculture puts out reports on cotton used in making 17 basic fabrics. Last year, cotton averaged 57% of the cost of manufacturing these fabrics. That is, on the average, more than half the cost in making cotton textiles was cotton cost.

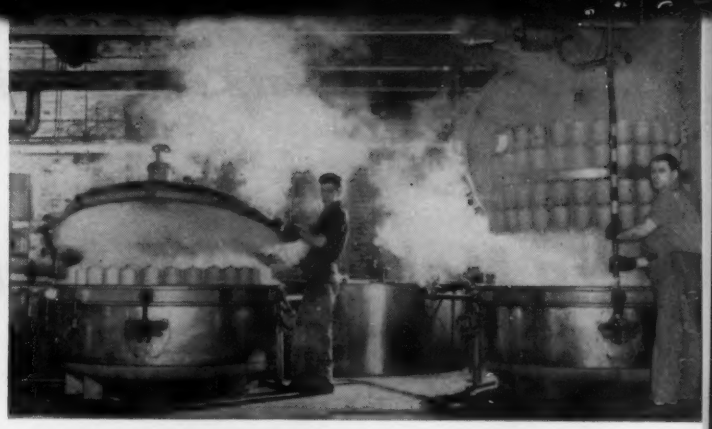
People don't seem to realize that since cotton is price-supported, American mills are forced to buy home-grown fiber and must pay at least a minimum price set by the government. We don't have the freedom to go shopping around the world, the way other countries do, to buy cotton at the best price. Right now, there is good Mexican cotton grown from the very same seed and raised under the same conditions as American fiber, equal in every respect to American cotton—in fact, grown only a few feet across the line from American fields. That cotton is selling at 3¢ a pound cheaper than the same American variety, and it is being bought by foreign textile mills.

Wage costs range from 20 to 25% or more of the cost of manufacturing typical fabrics. Here is another fixed charge, set by the federal minimum-wage law.

Thus, the U. S. textile industry has no choice but to pay the minimums prescribed by law, covering 80% of manufacturing costs. Foreign competitors are not bound by restrictions like that. Yet, in the name of free trade, they are invited to grab what they can of the American market on a practically no-holds-barred basis, now that the textile tariff system has been

CONTINUED ON PAGE 186

WINDING yarn onto cheeses for package dyeing or rewinding onto cones for knitting is taken care of in Globe's large winding department. Package density is carefully controlled to help even dyeing.



GLOBE'S STAINLESS-STEEL Smith, Drum machines handle 500 lbs. of yarn per load. Equipped for pressure dyeing, each machine has its own automatic time and temperature controls.

How Globe Dye Works
PACKAGE-DYES ORLON

Package-dyeing 18s, 27s, and 2/22s spun Orlon yarns for knitting is an important part of the work at Globe Dye Works, Philadelphia, Pa.

Here's how Globe gets results on spun Orlon in package-dyeing machines—

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

SPUN ORLON YARNS are wound for dyeing on 1¼-lb. cheeses cupped to break the shoulder of the package. The cupping operation eliminates uneven dyeing in the shoulder area by removing the slight extra pressure built up when the yarn traverse reverses.

As with any type of dyeing, all foreign matter such as dirt, throwing oils, and tint must be removed from the yarn before dyeing. Globe scours and dyes Orlon yarn in stainless-steel Smith, Drum machines of 500-lb. capacity. Yarn that is free of tint is scoured with synthetic detergents and TSPP for 15 to 20 mins. at 140 to 160° F. Stubborn tints require a longer scour at elevated temperatures.

Light Shades

Light shades are produced mostly with disperse dyes. The dyebath is made up with a good dispersing agent and the temperature raised to 120 to 130° F. The well-dispersed dye is added and pumped through the packages at approximately 3 gals. per min. per package. The temperature is raised to 205 to 208° F. and maintained for 1 hr. Most shades are complete in this length of time.

Careful control of variables such as time, temperature, and rate of liquor flow make repeat dyeings possible in a closed system. Globe uses a 1-lb. package laboratory machine to advantage in establishing formulas and setting up dyeing cycles that can be translated directly into procedure for full-sized lots.

Medium Shades

Medium shades on Orlon yarn are more easily produced with the Sevron colors. Dyeing is started at 120 to 130° F., and temperature is raised in 20 to 30 mins. to 205 to 208° F. and kept there until the shade is matched.

Dark Shades

When dark brown, navies, bottle greens, or blacks are required, Globe runs the temperature up to 255° F. The machines are equipped to operate under pressure; and once the assistants and dyes have been added to the liquor, the expansion tank is closed and the temperature is allowed to rise. Generally, 1 hr. is sufficient to get very heavy shades under these conditions.

According to Al Stutzke, dyehouse superintendent, spun Orlon dyes particularly well in package form. The packages become quite soft when heated to dyeing temperatures and permit an even flow of dye; so trouble with unlevel dyeing is almost nil. After cooling down to room temperature, the packages return to about the same density as when originally wound.

Part of Globe's success in producing an easily rewound yarn with good strength for knitting lies in the final processing in the dyeing machine. A cationic finishing compound is added to the final rinsing bath to replace to a certain extent the oils used in throwing the yarn. The softener produces an excellent finish and helps the strength of the yarn.

After dyeing and finishing, the packages are extracted and transferred to a cabinet dryer. Shipment may be on the dyeing packages, or the yarn may be rewound to customer's specifications.

To Make Quality Yarns— GOOD CARDING Is a Must

From opening through roving, Corriher Mills Co., Landis, N. C., makes a business of good carding practices. Emphasis is placed on the proper selection of cotton and careful processing. The mill has—

- **Built a new opening room**
- **Changed equipment layouts**
- **Staggered doffing schedule for cards**
- **Reduced drawing-sliver variation**

By WILLIAM G. ASHMORE, Associate Editor, TEXTILE WORLD

Good cotton and good carding are essential to the manufacture of high-grade combed yearns, according to Corriher Mills Co., Landis, N. C.

Corriher produces weekly around 110,000 lbs. of single and plied 18s to 60s yarn for sale to hosiery, underwear, and outerwear knitters. The yarn is made from carefully selected cotton with a Micronaire reading of 4.0 to 4.2.

In the opening room, which has recently been modernized, 48 bales of cotton are laid down; feeding is from 24 bales to 12 hoppers. Machinery organization varies somewhat from that in the average mill making similar yarns.

There are two lines of opening equipment. Each line consists of six Saco-Lowell F-5 hoppers attached to Centrif Junior cleaners, a pneumatic-conveyor system, a No. 11 condenser, a vertical opener, a No. 11-over-12 lattice opener, a return-air filter, and a Superior cleaner.

Mill-Built Conveyor

The pneumatic-conveyor system, which follows the Junior cleaners, was made by the mill. There is a tapered pipe, 11 to 7 ins., in front of each three cleaners. This pipe has small hoppers, one for each cleaner, built into it. The openings in the bottom of the hoppers range from 6x5 ins. at the small end to 6x3 ins. at the large end. The shape of the pipe and the size of the openings equalize the air pressure that draws the cotton through the conveyor.

Normally, a No. 11 condenser would be located between the No. 11-over-12 lattice opener and the Superior cleaner. However, the mill believed that the air pressure and beating action in the lattice opener would be adequate to throw the cotton through a passageway to the cleaner. A curved connecting passage was built between the machines, and the theory proved successful.

At strategic places in the line of equipment are Plexiglass doors or windows through which the waste can be observed as it builds up. These openings permit the quick spotting of chokes without shutting down the machine.

The picker room has five lines of Saco-Lowell single-process equipment with blending reserve. Each picker has three beaters. The three-blade back beater runs 1,100 rpm.; the two-blade middle beater operates at 1,200 rpm.; the Kirschner beater in front runs 1,300 rpm.

Production of a 44-yd., 16-oz. lap requires 7 mins. per picker.

In the card room, there are 237 Whitin and Saco-Lowell cards producing a 50-grain sliver at 5½ lbs. per hr. Settings and speeds are standard, based on a cylinder speed of 165 rpm. The newer cards have individual American Pulley drives: all the cards are equipped with Southern States ball-bearing comb boxes.

Alternate Cards Started

Laps are laid up on the cards every 8 hrs. Laps on alternate cards are started 4 hrs. apart, and alternate cards are stripped 2 hrs. apart. This arrangement gives additional blending and produces a more-even combing operation.

Combing preparation consists of Whitin sliver lappers, 20-ends-up, followed by ribbon lappers, four-ends up. A 600-grain lap is produced by the sliver lappers; a 650-grain lap is made by the ribbon lappers.

Whitin D4 and K combers, with five-roll drawboxes, are next in line. The D4 combers operate at 98 nips per minute. A 45-grain sliver is produced. Noils average 15½%.

Breaker and finisher drawing is standard four-roll, six-ends-up. A 55-grain sliver is made on the breakers; draft is 5¾. The finishers produce a 56-grain sliver; draft is 6. Settings and speeds

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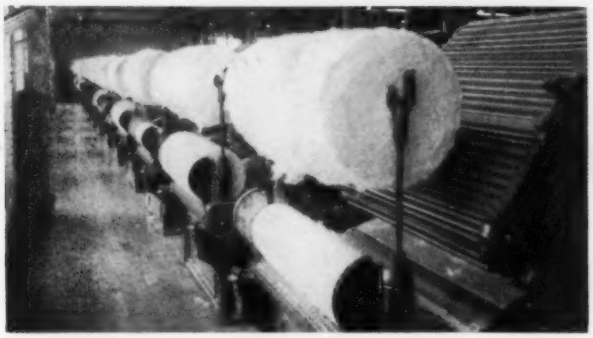
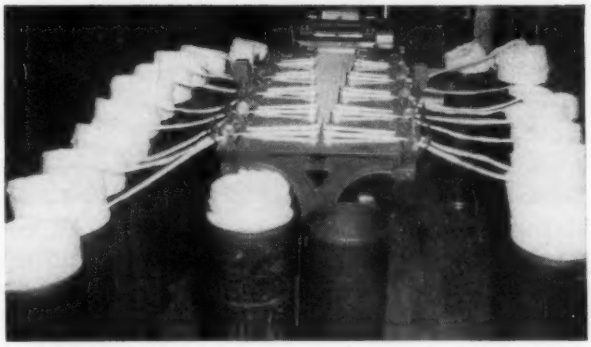
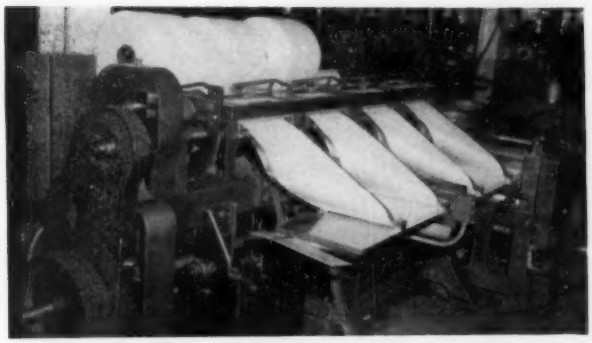


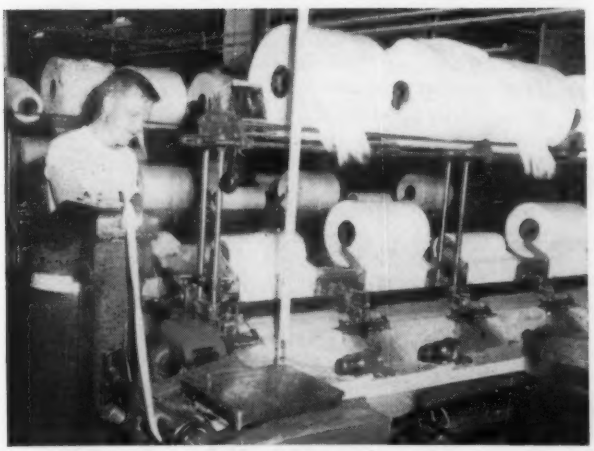
LAPS ON ALTERNATE CARDS are started 4 hrs. apart to give better blending in succeeding operations.

SLIVER LAPPERS, 20-ends-up, are used for the combing preparation; a 600-grain lap is produced.





RIBBON LAPPERS, four-ends up, follow the sliver lappers; a 650-grain lap is produced.



WHITIN COMBERS, with five-roll drawboxes, make a 45-grain sliver. Noils average 15½%.

TWO-PROCESS ROVING, 10x5 0.75-hk. in the creel and 8x4 3.10-hk. on the spindles, is used for finer yarns.

New Spinning Frames Improve YARN QUALITY

New spinning at Corriher Mills Co., Landis, N. C., is giving these results—

- **Roll picking reduced 93.3%**
- **Breaking strength increased 5 lbs.**
- **Evenness increased 10%**

By **WILLIAM G. ASHMORE,** Associate Editor, TEXTILE WORLD

TO MAKE YARNS of appearance, evenness, and strength necessary to compete in its highly competitive market, Corriher Mills Co., Landis, N. C., is modernizing its plant and equipment.

The focal point of interest is the spinning department, where a range of numbers from 18s to 60s is made on 41,000 spinning spindles and 4,700 twisting spindles. About 110,000 lbs. of yarn is produced weekly. Most of the yarn goes to hosiery, underwear, and outerwear knitters. A small percentage of the production is a cotton-acetate blend.

Spinning improvements made recently have resulted in better-running frames, more flexibility, and improved quality. Other benefits include lower costs for maintenance and repair, reduction in cleaning time, and increased work assignments.

Old Spinning Frames Replaced

Some of the old spinning frames were replaced with 33 new Whitin F-2 frames. These frames are currently spinning 18s to 40s filling.

The coarser yarns are spun from double-creeled 2.00-hk. roving on 10x5 bobbins. Twist multipliers range from 2.70 to 3.30. Spindle speeds are 7,500 to 9,500 rpm.

The Whitin T-3 Super-Draft double-apron drafting system with a 36-mm. cradle is used. The roll arrangement is somewhat different from standard in that the three top rolls are suspended from a top arm mounted on the back bar.

This top arm holds the Uniline middle and back rolls and the Whitin-Climax ball-bearing front roll in position and alignment.

The middle and back rolls have nylon bearings. The two bosses are keyed to an arbor and rotate together. Cap bars and saddles are not used with this arrangment.

The weight application and suspension of the rolls are controlled by a center stationary sleeve spacer that serves as a bearing. The setup has a Speakman screw-and-lever arrangement.

Accessories include Pneumafil and overhead cleaners. Two lines of revolving top clearers and a revolving bottom underclearer are used. Spindles are Whitin Medium No. 4 equipped with Oilite bearings and large-capacity oil reservoirs.

Frames are operated by Allis-Chalmers 10-hp. motors through a vari-pitch drive. Wooden bobbins are used.

A comparison between the new and old frames on the same numbers shows that cleaning time has been greatly reduced. This factor, plus better over-all running conditions, has permitted a 36% increase in work assignments. The effort expended by the individual operator is no greater.

Spinners perform all duties except picking rolls. On the old equipment still in place and spinning the same numbers, the operators pick rolls at least once a day. On the new frames, the picking schedule is once every three weeks, a reduction of 93.3%. The net result of the extended picking cycle and easier roll picking is an over-all reduction of 98.4% in the amount of time required to pick top rolls.

Accumulation of lint and fly in and around the aprons, cradles, rolls, and bearings has been almost eliminated. Ends down average 23 per thousand spindle hours.

On the old frames, the top front rolls are oiled once a day and the top middle and back rolls once a week. The new frames require no oiling of the top rolls and 66% less oiling of the other rolls.

Oily Yarn Stopped

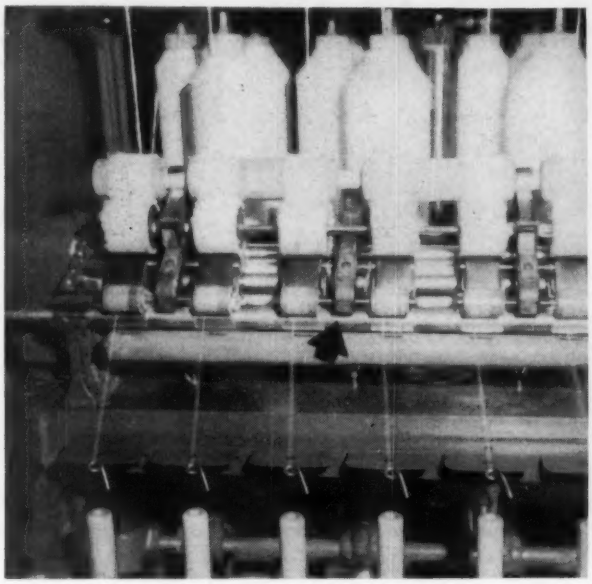
The elimination of oil from the top rolls has stopped oil-stained yarn, and frames stay cleaner above and below the roller beam. This fact alone has contributed substantially to the changes in the cleaning schedule and to the reduction in lubrication costs.

The scouring schedule formerly was once every six months; the cycle now is once a year. Aprons, which used to be cleaned every six months, are now cleaned once yearly.

The mill estimates that the spinning improvements described have increased breaking strength 5 lbs. and evenness 10%.

Plied yarns are produced on 22 Whitin twisters, which include: 6 Model B twisters with 3-in. vertical rings, 3¾-in. gauge; 14 Model B frames, 2¾-in. rings, 3¾-in. gauge; and 2 Model BJ2 frames, 4½-in. rings, 6-in. gauge. The BJ2 twisters are used to make two-ply warp in 2-lb. packages.

The twisting department also has two 100-spindle Foster doublers, two-ends-up. In the same room are 18 120-spindle Foster 102 winders that produce 2½- to 3½-lb. cones and 20-oz., 6x5 tubes.

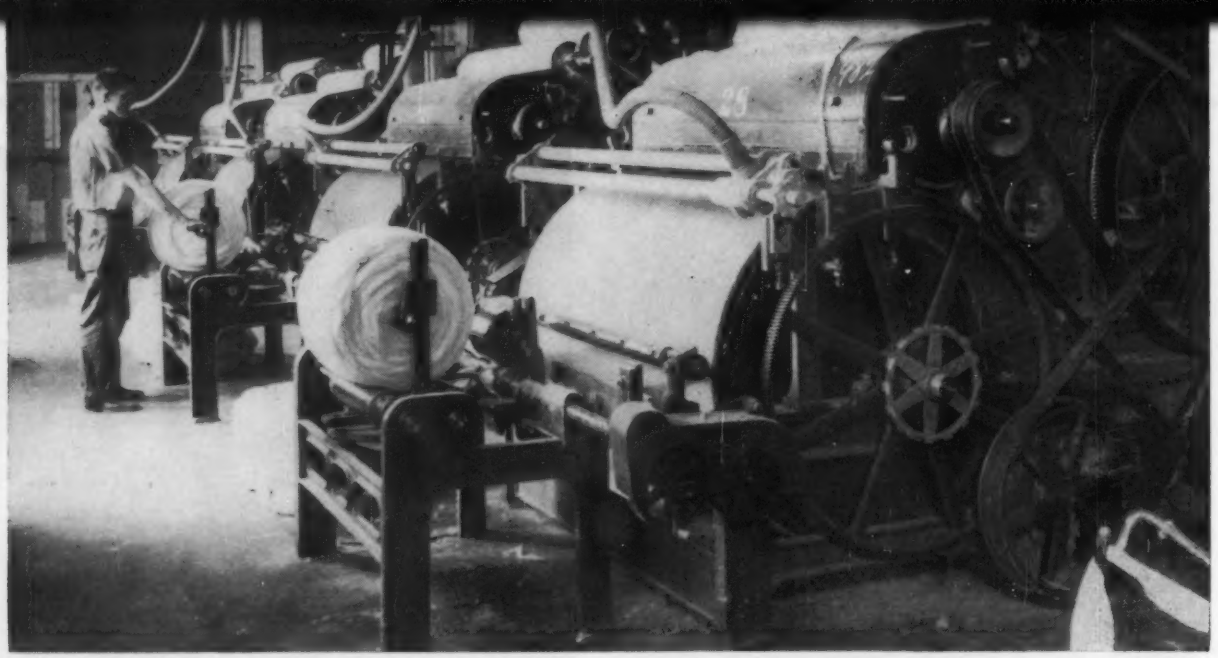


TOP ARMS (arrow) mounted on the back bar hold the top rolls. The rolls shown here have not been picked for two weeks.

TOP ROLLS on the old frames have to be picked every day. These frames are being replaced with Whitin F2 models.

THE WINDERS produce 2½- and 3½-lb. cones and 20-oz. tubes. Doubling is two-ends-up.

PLIED YARNS are twisted on Model B machines; BJ2 frames are used to make 2-lb. warp packages.



CARDS have flexible wire and are equipped with Abington vacuum-stripping equipment. Morel rolls are mounted at the entrance end and between the first doffer and second cylinder.

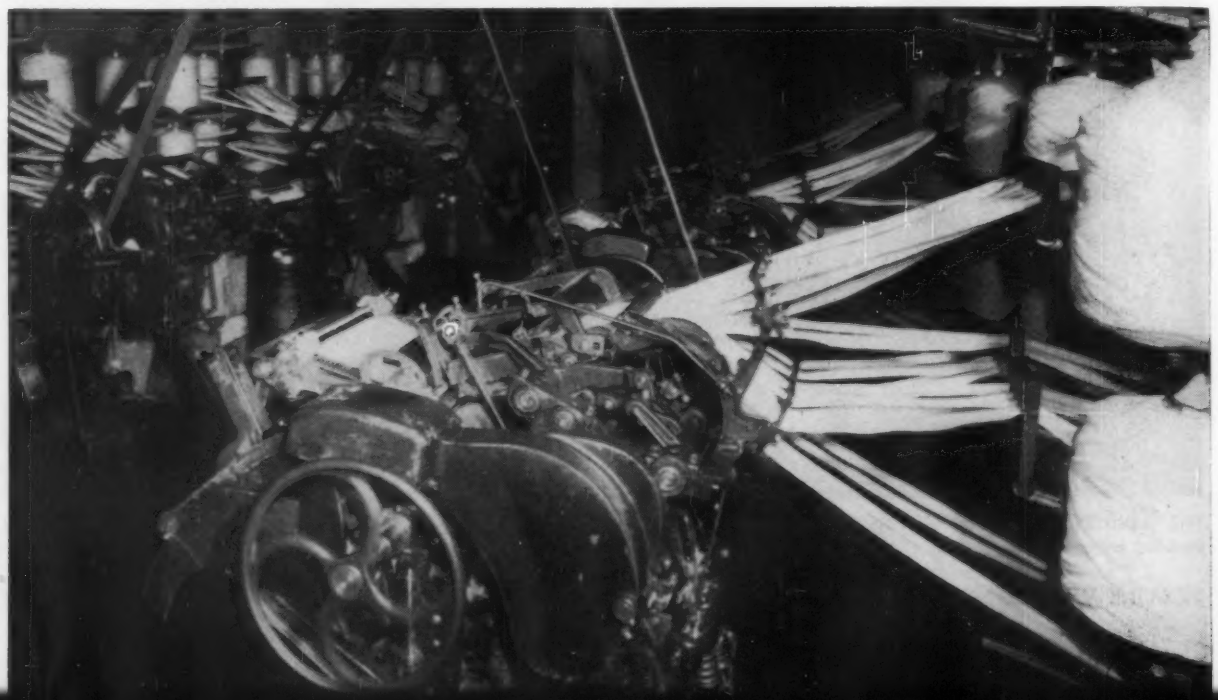
PIN DRAFTERS at French Worsted Cut Labor Costs, Reduced Noils

When French Worsted replaced five-head gill boxes with pin-drafter preparers, assemblers, and finishers, it saved—

- 25% in combing assignments
- 0.5% in noils
- 33% in assembler and finisher labor

By THOMAS B. WINSTON

FRENCH COMBS make a 3.8-oz. sliver from 12 balls consisting of two ends each. The balls, which weigh 22 lbs. each, last up to 17 hrs. French uses 12 comb balls per comb.



TWO PIN-DRAFTER PREPARERS produce a 1.4-oz. sliver, with two slivers per delivery and a draft of 7.7. The combination of pin-drafter preparers, assemblers, and finishers saved 25% in combing assignments.

LAST year, French Worsted Co., Woonsocket, R. I., replaced five-head gill boxes with a combination of pin-drafter preparers after backwashing and pin-drafter assemblers and finishers after combing. Results were a 0.5% reduction in noils and a 25% saving in combing assignments.

French makes 5-million lbs. of top a year from about 10-million lbs. of grease wool (Texas, Cape, and Australian). The mill has a 24-million-lb. scouring capacity, which leaves an excess of 14-million lbs. for commission work. The average lot run is 64 to 70s wool measuring 21 microns.

Cards at the mill are set up to deliver sliver weighing 2.44 oz. per 5 yds. The cards have flexible wire and are equipped with Abington vacuum-stripping equipment. Morel rollers are mounted at the entrance and between the first doffer and second cylinder. Each card has an overhead monorail to help handle the card sliver.

Regular stripping and grinding schedules are part of a preventive-maintenance program; for example, cards running 64 to 70s are stripped twice a week. A Mathews conveyor, with distinguishing markings for two different dumping points, carries balls of stock in process. Noils are conveyed back to the baler by chutes.

Backwasher Keeps Moisture Content Uniform

Card sliver next goes to the backwasher. The backwasher has an automatic temperature control that uses a piece of parchment as the sensing element. Sensitive to moisture, the parchment activates electronic controls that operate dampers to main-

CONTINUED ON PAGE 188

FOUR ASSEMBLER AND FINISHER PIN DRAFTERS with eight heads replaced 12 heads of gill boxes. The assemblers produce a 3.2-oz. sliver, and the finishers deliver a 2.9-oz. top from seven ends.

To Increase HOSIERY PROFITS—

- Plan for a consistent weekly production
- Figure costs at various production levels
- Watch overtime payments
- Base substandard costs on selling price

By **WILLIAM O. ALLEN,** Production Manager, Williamson Hosiery Mills

WHILE most manufactured products have increased in price over the last several years, the price of hosiery has declined, even though the cost of making this hosiery has increased. Overproduction is the great evil, but attempts to decrease production have failed. However, profits can still be made or increased with the following production methods.

The most important item in making a profit or increasing profits is preplanning. This work should be done by the mill manager and executives of the company, but advice from supervisors and skilled personnel should be sought.

Overhead costs have a great influence on profits and remain the same regardless of production; so strive toward a consistent weekly production in your preplanning.

Check your overhead items periodically to see if they are increasing or decreasing. Since these items continue every day, any saving will be significant in a year.

Indirect labor is another item paid for regardless of the production run. A review of indirect labor might reveal people who could assume more responsibility or a greater workload.

Don't Overload Supervisors

Supervisors may be so overloaded that they cannot perform their jobs satisfactorily. Distributing the workload more evenly may eliminate some personnel and make the remainder more capable of helping to increase profits.

Run a check at the end of the season to determine the accuracy of your cost methods and to see if your efficiency has cut this cost. Total your actual costs of the season, less the inventory, and divide the figure by the number of dozens produced.

If your substandards have not run more than the allowances made, the average of your various cost sheets, proportioned to the production run, should be near the actual costs.

If these costs check, a cost for the next season can be made for most items of your cost sheet that are not new numbers. This figure will also help to determine the production on which to distribute your charges at the start of a new season.

Figure Costs at Various Levels

You can also figure cost at different production levels where overhead and direct labor are the same. This system pays off when the market declines and the question is raised whether prices should be cut and how much.

If a set of machines with a capacity of 1,000 doz. per week is standing idle, you can possibly lower costs for the style they produce. Suppose the cost of the style is $2.50 per doz. for 6,000 doz. per week. If you are producing 6,000 doz. per week and expect to maintain that rate, the idle machines could raise the production to 7,000 doz. weekly. At 7,000 doz. weekly, the cost may go down to $2.40 as a result of lower overhead and greater direct-labor efficiency.

The cost has not only been lowered for this style but for all styles being produced. You could sell the style at 10¢ or more less and still make the same average profit per dozen through the savings in overhead.

Keep a record showing the cost per dozen for both direct and indirect labor. This record shows the effect of various productions upon your total labor cost per dozen.

Profits increase when a balanced flow of goods is maintained. If a steady production of 10,000 doz. is maintained and the wages paid are $8,000, a labor cost of 80¢ is obtained. Should improper sales coverage, yarn shortages, or other factors cause this production to fall to 8,000 doz. for the same period, the labor costs of each dozen will rise to $1. Some direct labor may be cut during this period, but the bulk of the total wage would remain.

The ideal is to knit to order and have no stock unsold. This ideal can be achieved with preplanning, but emphasis must be on the selling of a new line so that orders can be knitted as soon as orders for older styles are completed.

Production loss between seasons must be kept down. If new orders are not coming quickly on the newer styles, the selling organization should be urged to sell more of the older styles to keep machines running until orders for new styles arrive.

Yarn should be purchased so that large amounts of capital are not tied up in yarn stock. Record the number of machines placed on each style, and change the number when machines are added or taken off.

A new pattern might not sell as anticipated, whereas another pattern might sell well; so don't change any more machines to a new style than is necessary to complete the current orders.

Watch Overtime Payments

Overtime payments must be watched carefully. When overtime rates are 50% more than regular rates, the rate for a 20¢ operation, such as looping, raises the cost to 30¢ per dozen.

Some savings are made in overhead costs, but the savings are insignificant

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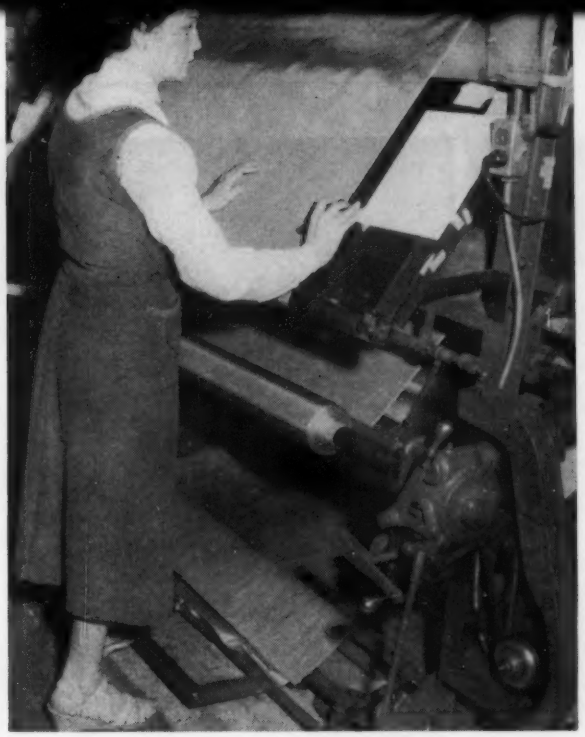
Adapted from an address given at the 1956 meeting of the Southern Hosiery Manufacturers Assn.



How To Reduce SET MARKS

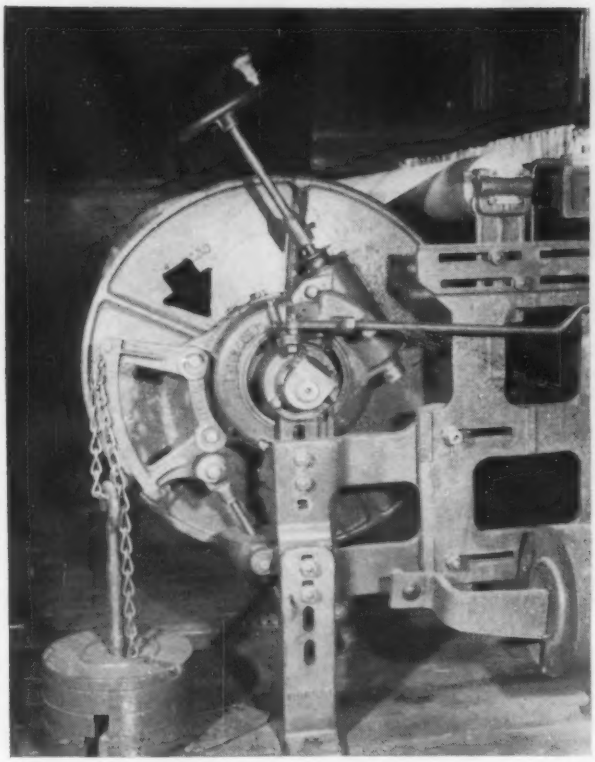
Set marks are the No. 1 defect in filament-fiber fabrics. Worst fabrics of all are satins, acetate taffetas, and dope-dyed fabrics.

One mill superintendent says, "We're now running 17% seconds on our loom-finished fabrics. If we could eliminate set marks, we would be running 3% seconds."

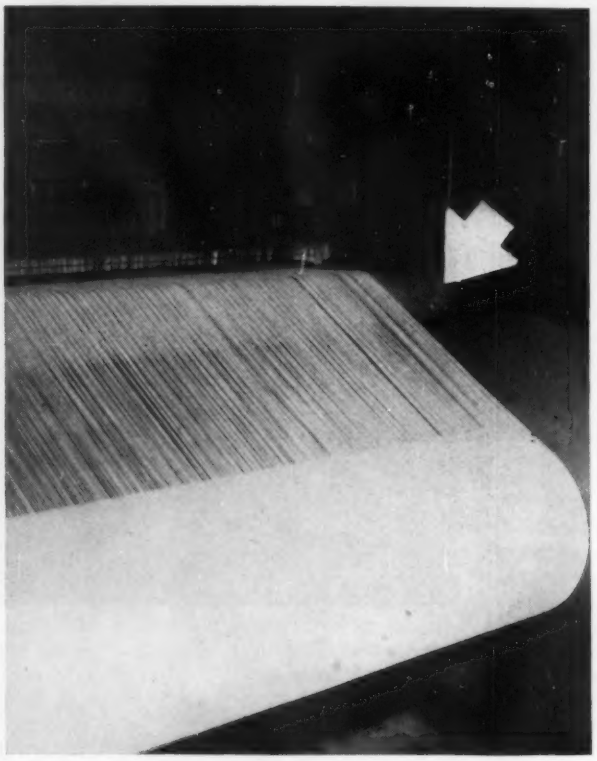
To find out exactly what causes set marks and what mills are doing to reduce them, TEXTILE WORLD went to three mills weaving satins, taffetas, and dope-dyed fabrics.

Here is what we found out—

By RICHARD B. PRESSLEY, Associate Editor, TEXTILE WORLD



C&K LET-OFF (arrow) is checked often for mechanical condition, proper grease level, and grease condition.



WHIPROLL (arrow) is set with the breastbeam or guide roll to form a straight warp line. Gauges are used to set the parts.

What Are Set Marks?

Set marks may be divided into two distinct types: (1) heavy marks that occur each time a loom is stopped for, say, over 1 min.; and (2) corrugation marks that occur at loom stops when one warp shed is stretched more than the other. There is no variation in picks per inch. The second type of set mark is harder to eliminate.

Although each type of set mark has its own cause, the results of the survey show that these four steps, listed by importance, are taken to prevent all set marks:

1. Put the loom in good condition generally. Pay particular attention to the let-off, whiproll setting, warp stop-motion settings, harness settings, and take-up.

2. Keep looms running as constantly as possible. Use knotless first-grade warp yarn. Give a lot of attention to slashing formulas and methods.

3. Train weavers properly. Have them get to stopped looms quickly. Be sure they pull the lay past back center before they restart a loom.

4. The weaving supervisors must follow up constantly. They must watch slashing and yarn quality, check looms after loomfixers, and see that weavers are following good practices.

What Stops Set Marks?

The opinions of the mill manager or superintendent contacted in the survey on the best way to eliminate set marks are:

Plant No. 1—"It's the weaver who eliminates set marks. Of course, the loomfixer has to be capable; but two weavers working side by side with each other on the same style of cloth will vary greatly in seconds from set marks, with the good weaver having fewer."

Plant No. 2—"It's follow-up that counts; everyone has to be constantly aware of the problem and must keep after it. You have to have good yarn, as knotless as possible. It's important to have weavers trained properly; we use a weaving instructor for this job."

Plant No. 3—"While there are days when no physical effort is made to correct set marks, we don't let 24 hrs. pass when we aren't thinking of a solution. So far, we haven't found a cure. Slashing formulas, loom settings, warp tension, and many other factors affect set marks."

In general, the three mills are following the same practices in trying to eliminate set marks. Broken down by mills, the practices are:

Mill No. 1

"We have Draper XD and C&K S-6 looms. Fabrics woven that make excessive set marks are acetate taffetas and satins.

"Cloth is graded on the point system, and four points are a major defect. Cloth is woven in 100- to 120-yd. rolls, and six or more set marks in a roll are graded as seconds. At present, 6% of our cloth is being graded as seconds because of set marks. We have been able to reduce the set marks 6%, or by one-half.

"The most effective methods in reducing set marks are: (1) keeping looms running, (2) close and constant attention to let-offs, (3) keeping take-up rolls and pressure rolls in good condition, and (4) weaver training.

"Yarn beams are checked for proper alignment at every warp-out. We have built a machine from a lathe to check the beams. Some of our beams are adjustable in length, and others are not; but this factor does not affect set marks. The loom-beam diameters are 24 and 26 ins. on XD looms and 32

How To Reduce Set Marks

HARNESSES (arrow) are checked and set for a straight warp line by Dick Pressley, the author. The open shed clears the shuttle ¼ in.

STOP MOTION is set so that yarn (arrow) is evenly divided at an open warp shed. The setting is made with a gauge.

ins. on S-6 looms. The loom-beam journals are 1½ ins. in diameter on S-6 looms and 1⅝ ins. in diameter on XD looms.

Let-offs Are Checked Closely

"The XD let-off is Bartlett; the S-6 let-off is precision. No special-weight springs are used on the Bartlett let-off; the let-offs are maintained just as they came from the manufacturer. We use a heavy-viscosity grease in the precision let-offs.

"Let-offs on XD looms are checked, and overhauled if needed, at every warp-out. Our heavy yarn beams knock the gears out of alignment, and we realign them at every warp-out. We take great care to see that the let-offs turn freely while the yarn beam is out of the loom. All settings are made by Draper standards, but we're especially careful to divide the take-up pawls equally.

"Precision let-offs aren't checked as carefully. But we do check the grease level and grease condition closely. The let-offs on both types of looms are maintained by the section loomfixer.

"Antifriction bearings, as supplied by the manufacturers, are used throughout the let-offs and whiprolls of both looms. Warp tension is checked with a Crompton & Knowles tensiometer once each week by supervisors.

"The whiproll and guide roll at the breastbeam are set together to form a straight line through the center of the shed (straight warp line). These settings are made with homemade gauges for each type of loom. The warp stop motion is also set with gauges so that the drop-wire eyes split the center of the warp shed.

"We have vibrating reeds, of course; but we run them dead. Run that way, they give more constant beat-back and reduce set marks. The cloth is threaded around the breastbeam in the regular way, and not back of it.

"We use regular temples with synthetic-rubber rolls. To be sure the temples release the cloth without binding, we check them visually; the cloth must pull down constantly and not bag at the temples.

"We use synthetic-rubber take-up-roll covering and felt pressure-roll covering. The condition of these two rolls has a great effect on set marks; the cloth must be pulled over constantly. We replace the take-up roll when the cover wears smooth or shows bubbles and glue on the surface. We replace the pressure roll when it becomes packed. We apply pressure to the pressure roll until the cloth pulls down smoothly all the way across.

Overhaul Take-Ups Each Year

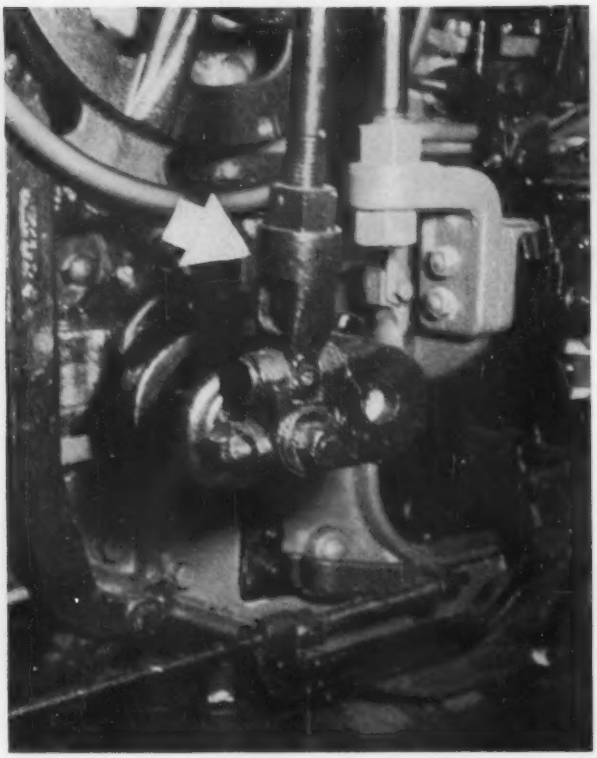
"We overhaul the take-up motion completely once each year. Special overhaulers do the work. At that time, they tear down the gear train, clean all parts, and replace worn parts. Usually, the take-ups do not give trouble between overhauls.

"Excessive tension on the clutch collar for the cloth roll increases set marks; therefore we check the cloth roll constantly to be sure it's turning freely. Otherwise, no other take-up part gives particular trouble.

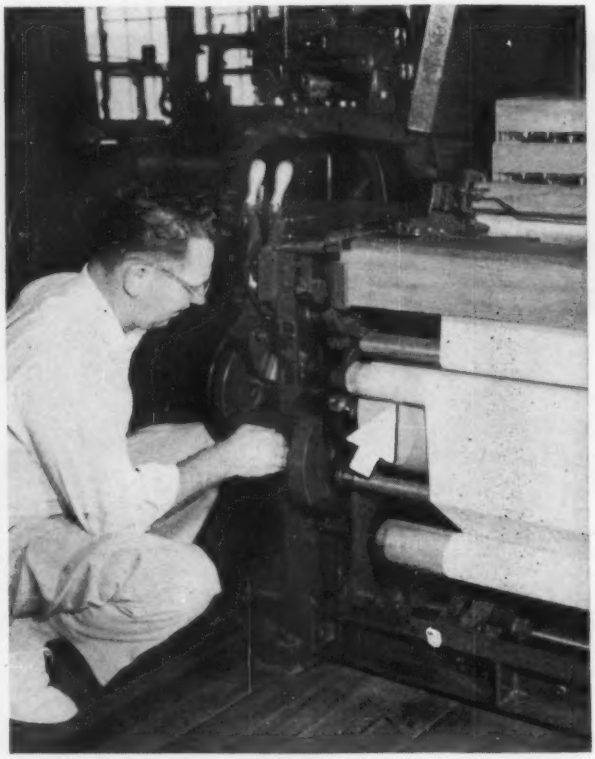
"All our looms are equipped with dobbies. We use regular pull-down springs on the harnesses. We divide the head very closely, since an unequal shed contributes to the severity of corrugation set marks. We use regular harnesses and set the shed $\frac{3}{32}$ to $\frac{1}{8}$ in. over the race plate. This setting must be checked often because harness cords stretch and let harnesses drop.

"The top-shed is set approximately ¼ in. over the shuttle with the shed

How To Reduce Set Marks



DOBBY is divided so that both warp sheds are exactly equal. Settings begin at the dobby drive connector (arrow).



TAKE-UP must keep the cloth pulling over constantly. Take-up-roll covering and pressure-roll covering (arrow) are important.

open. The least possible amount of clearance over the shuttle, consistent with good weaving conditions otherwise, minimizes set marks. The harnesses are usually staggered two in a line on the jack eyes.

"The harnesses are timed to cross ¼ to ½ in. past front center; this setting, although extreme, does much to reduce set marks. Of course, the warp shed is rechecked with the breastbeam and whiproll so that it's centered in a straight line.

"The warp is drawn one, two, three, and four in the banks of drop wires; and we usually run six harnesses. We have tried staggering the warp ends between the harnesses and the drop wires, but it did not improve set marks.

Keep Atmosphere Constant

"Our weave room has refrigerated air conditioning, and a rapid change in the relative humidity or temperature causes an adverse reaction on the yarn and excessive loom stops. Both these reactions contribute to set marks. We maintain 68% r.h. and 82° F. temperature.

"When weavers restart looms, they pull the lay back until the crankshaft reaches top center, which is usually at the position where the filling slips from under the feeler wires of the center stop motion. If a loom is stopped for a few minutes, the weaver pulls the pick gear around one or more picks depending on the length of the stop.

"Slashing the warps has a lot to do with set marks. Generally, a heavy size is best. For example, on taffeta with 170 warp ends per inch, set marks will be reduced by an extra-heavy size content. But we often have to lighten up on the size to give the cloth a good face and to prevent tear marks.

"Our size pickup at the slasher is 4 to 5%; stretch is 8%; and 6% moisture is left in the yarn.

Don't Count on Eliminators

"We've tried a couple of so-called set-mark eliminators on both Draper and C&K looms. They were of no value to us."

Mill No. 2

Many of the practices used by Mill No. 1 were also used at Mills 2 and 3 in the survey. Here are a few differences used by Mill No. 2:

"We have Draper XD looms and C&K S-3 looms and weave dope-dyed taffeta. In our grading system, a heavy set mark counts four points and a light set mark counts two points. Eight heavy set marks in a 100-yd. roll of cloth throw the cloth in seconds.

"We're now grading 3% of our cloth on C&K looms as seconds and 3 to 5% of cloth on Draper looms as seconds from set marks. We've been able to reduce the set marks 3 to 5%.

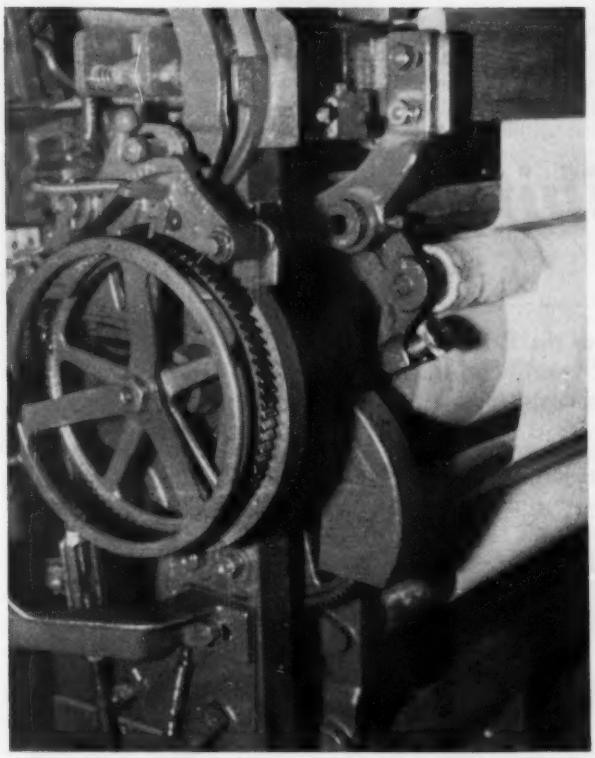
"We check our empty yarn beams at every warp-out. They're checked on two sawhorses in the slasher room by whirling them and marking the high places with chalk.

"We use an extra-large vibrator-rod spring on the Bartlett let-offs. In precision let-offs, we use extra-heavy grease.

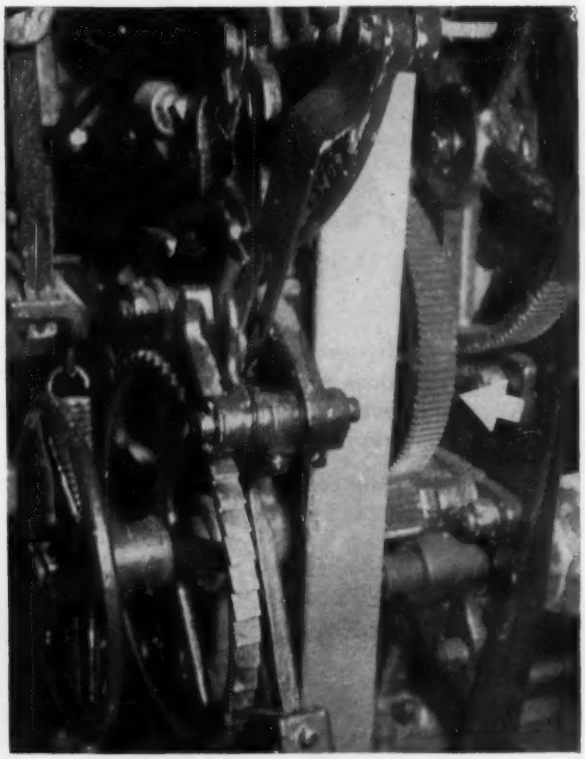
Check Warp Tension Often

"Warp tension is checked on each loom every 24 hrs. We use a Crompton & Knowles tensiometer and set the tension on warps on both C&K and Draper looms at 65 grams.

"We time the whiproll cam on XD looms 1 in. past front center. The whiproll height is set with a long carpenter's level mounted on a gauge so that the whiproll and breastbeam are level.



C&K TAKE-UP. The critical part is the intermediate-gear shaft. The cloth must start moving when the gear moves one tooth.



DRAPER TAKE-UP. The critical part is the intermediate gear (arrow). The gears are torn down and overhauled once a year.

"We run a vibrating reed on Draper looms and a dead reed on C&K looms.

"We use temples on our Draper looms, but we run them without rolls and caps. On C&K looms, we use temples without rolls and caps and use a guide rod over the cloth.

"We use both cork and synthetic-rubber take-up-roll covering and felt pressure-roll covers. As soon as the cloth starts slipping at the take-up, we replace the take-up roll or the pressure roll.

Take-Up Parts To Watch

"On XD-loom take-ups, the ratchet take-up pawl wears rapidly and must be watched closely; the intermediate gear must also be kept in good condition.

"On C&K looms, we time the harness $\frac{1}{8}$ to $\frac{1}{4}$ in. past front center; on XD looms, we time them $\frac{1}{8}$ in. before front center.

"We have an evaporated-water cooling system and keep 68 to 72% r.h. The temperature is maintained at 84 to 86° F.

"Weavers pull the lays to back center before they restart a loom. When Draper-Diehl drives are used, the lays don't have to be pulled back as far because the looms start faster.

"In slashing, we heavy up on our size formula. We also keep the size level below the bottom half of the squeeze roll. We maintain 5% size pickup and 6 to 7% stretch. Set marks are reduced if some stretch is taken out of the warps.

"Set-mark eliminators have not helped us. As a matter of fact, our tests with them showed increased set marks."

Mill No. 3

"We have Draper XK and XD looms and C&K S-3 and S-6 looms. We weave acetate dope-dyed taffetas. A set mark is a major defect, and six set marks in a 100-yd. roll of cloth make seconds.

"Empty yarn beams are checked for alignment in the slasher room before they're used again. They're checked with a gauge.

"We use a warp tension of 65 grams on a Crompton & Knowles tensiometer, and tension is checked every 24 hrs.

"The whiproll is timed with the cam toe high at front center. We run both vibrating and dead reeds. The reed vibrates $\frac{1}{8}$ to $\frac{1}{4}$ in.

"We use temples and synthetic-rubber rolls. Our take-up-roll covering is cork, and the pressure rolls are covered with felt. We increase the pressure-roll-covering tension when the cloth texture becomes rough. If the tension is set correctly, the cloth surface will be smooth above the breastbeam.

"The take-up intermediate-gear shaft and the ratchet-gear hold pawl wear rapidly and must be replaced often.

Divide Dobby Closely

"Both Drawtex and regular harnesses are used. The harnesses are timed $\frac{1}{4}$ in. past front center. The dobby is divided as accurately as possible, and the warp forms a straight line.

"Our weave room is air conditioned and refrigerated, and we maintain 70 to 75% r.h. and 82° F. temperature. We don't think atmospheric conditions affect set marks at all.

"We have added urea to our size formula, but it doesn't help set marks. Our pickup of size at the slasher is about 8%. Stretch is 6% and varies with the type of yarn used. We leave 1 to 2% moisture in the yarn.

"We have tried devices to eliminate set marks, and they were no help at all."

1856—An Accident! 1956—A Celebration!

In 1856, an 18-year-old Englishman, ...

1955 AATCC Exhibition

- **Fifty-seven companies had display booths at the 1955 national convention of the American Association of Textile Chemists & Colorists in Atlantic City, Sept. 22-24. Products shown covered a range of dyes, chemicals, finishes, processing equipment, and auxiliary supplies.**
- **New products shown are described in this report of the exhibition.**

Direct-Reading Balances

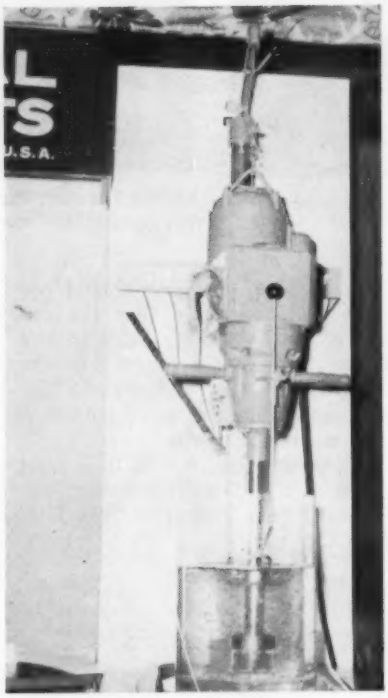
Circular-scale direct-reading balances in capacities up to 2,500 milligrams, made by August Sauter, Ebingen, Germany, were shown. The U. S. agent is Curry & Paxton, New York, N. Y. Operating at accuracies up to 0.001 milligrams, the balances require no additional weights.

Circle A-1 on Reader-Service Card

High-Purity Salt

Common salt produced by the Alberger process was featured by Diamond Crystal Salt Co., St. Clair, Mich. Particularly suited to water-softening and dyeing processes, the salts offered for these purposes are 99.95 ±0.01% pure sodium chloride. Reduction of impurities results in brighter colors when this nearly pure salt is used in dyeing. Regeneration efficiency in water softeners is claimed to increase 35% when the salt is used in nugget form.

Circle A-2 on Reader-Service Card

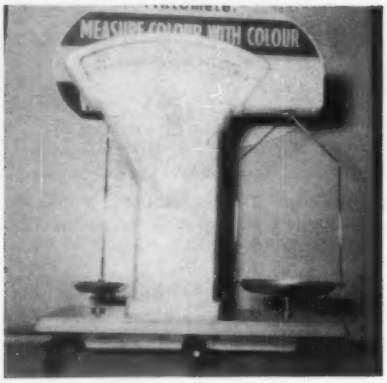


Mixer With Dual Impellers

A mixer shown by Gabb Special Products, Windsor Locks, Conn., has two impellers and a stator spaced close together. The impellers are counterrotating to create a pumping action that moves the material from the bottom of the container upward through the veins of the stator. Shearing takes place between the impellers, where particle rubs against particle.

The mixer can be used for mixing textile colors, printing inks, paints, lacquers, adhesives, polyester resins, and other emulsions.

Circle A-3 on Reader-Service Card



Laboratory Balances

Balances suitable for general laboratory weighing and analytical work were shown by Curry & Paxton, New York, N. Y. Made by August Sauter, Ebingen, Germany, the balances are offered in several models from 200- to 10,000-grams capacity. No extra weights are required. Readings as low as 5 milligrams are possible directly off the scale of the 200-gram-capacity model.

Circle A-4 on Reader-Service Card

Silicone Finish

Sylmer, a finish for upholstery, which repels water and water-borne stains, was shown by Dow Corning Corp., Midland, Mich. Most oily or greasy spots can be removed with a solvent-type cleaner without leaving a solvent ring. The solvent does not remove the finish. Such stains as coffee, tea, and soft drinks roll off without wetting the fabric; or they can be blotted off with tissue or rinsed off with water.

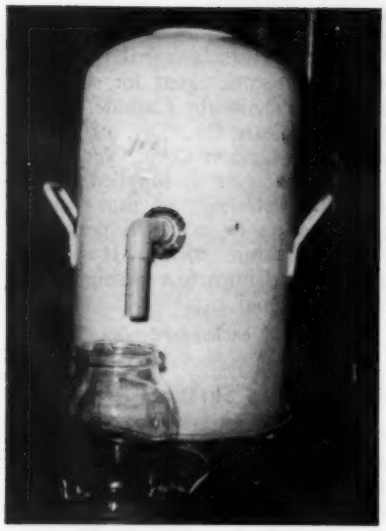
Circle A-5 on Reader-Service Card

Antistatic Agent

1856–An Accident! 1956–A Celebration!

In 1856, an 18-year-old English chemist named William Henry Perkin was puttering around with his test tubes trying to make synthetic quinine. And one of those strange and brilliant accidents of science occurred. Instead of stirring up a mess of quinine, the kid stirred up history's first mess of synthetic dye—"Perkin's mauve."

Next year, in New York's Waldorf-Astoria hotel, the 100th anniversary of that magnificent accident will be celebrated. Under the sponsorship of AATCC, 27 other professional societies from three countries, with a membership of several hundred thousand, will take part in the Perkin centennial celebration the week of September 10. During the centennial week, AATCC will hold its annual convention for 1956.



Homogenizer

The Jet Mogenizer, a homogenizer shown by Buschman Products, Inc., New York, N. Y., works under cold-water conditions. In minutes, both miscible and immiscible ingredients are blended into a smooth solution. The unit eliminates the necessity for taking the usual precautions in mixing, stirring, cooking, and ageing print dyes.

Circle A-6 on Reader-Service Card

Print-Paste Thickener

Easily soluble in cold water and compatible with acids and alkalis, Carobene, a print-paste thickener shown by Buschman Products, Inc., New York, N. Y., is available in two types to meet requirements for different viscosities. The product is said to intensify dye fixation and facilitate the penetration of dye into the fabric.

Circle A-7 on Reader-Service Card

Metal Infrared Elements

Shockproof, splashproof all-metal infrared generators were shown by Edwin L. Weigand Co., Pittsburgh, Pa. Called Chromolox Metarays, the units fit regular sockets for standard infrared bulbs. The units are compact, maintain full efficiency for their entire life, and can be used in series on circuits up to 600 v.

Circle A-8 on Reader-Service Card

Fluorescent Lights

An innovation in fluorescent tubes was shown by Nu-Lite Corp., Newark, N. J. The phosphors used to coat the insides of the tubes are applied in annular rings, with spaces approximately $\frac{1}{8}$ in. wide between rings. Results are 30% higher intensity illumination. Tubes that emit balanced light well adapted to color evaluation are included in the line. Other types are for general illumination.

Circle A-11 on Reader-Service Card

Recording Spectrophotometer

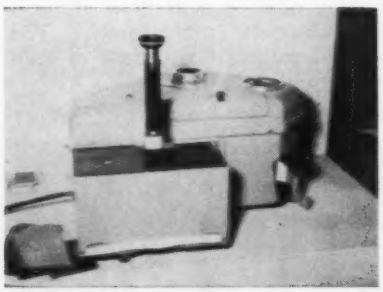
Designed for fast and accurate color analysis in textile plants, an improved spectrophotometer was shown by General Electric Co., Schenectady, N. Y. A complete didymium curve is drawn in 54 secs. by the machine. Permanent records are provided, from which color standards can be set up. Color matching, dye testing, and chemical analysis come within the scope of the instrument.

Circle A-9 on Reader-Service Card

Soluble Acetate Colors

Pad-Dye Corp., Paterson, N. J., showed samples of acetate and acetate-and-rayon fabrics dyed with a new series of dyes. Described as truly soluble rather than disperse colors, the dyes are applied by the padding process followed by fixation on a jig or through Williams units. Gray goods can be dyed by the method without the boil-off step. Rayon is reserved by the dyes. Rayon colors can be added to the pad box if it is desired to dye both fibers when the fabric is made of acetate and rayon.

Circle A-10 on Reader-Service Card



Tintometer

The Lovibond Schofield Tintometer was demonstrated by Curry & Paxton, New York, N. Y. The machine is based on the Lovibond color-measuring system that uses glass-slide comparators tinted to various degrees of closely standardized shades of red, blue, and yellow. Light reflected from a sample inserted in the machine appears in the color of the sample on one-half of the viewing screen. Manipulation of the colored-glass slides brings the illumination and color of the other half of the screen into match with the sample. Readings are then taken for future reference. The instrument defines luminance as well as color quality.

Circle A-12 on Reader-Service Card

Water Repellents

The Ranedare series of durable water repellents shown by Metro-Atlantic, Inc., Centredale, R. I., was developed as a range of products that could be used on any textile product. Three products were developed to cover a wide range of fabrics and finished effects. The products are all free-flowing emulsions readily dispersible in cold water.

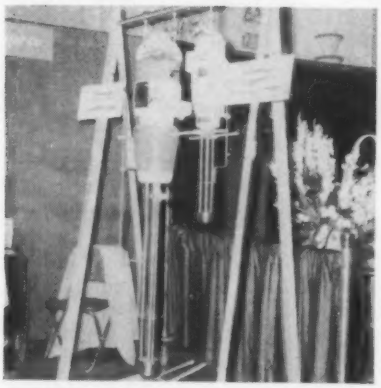
Circle A-13 on Reader-Service Card

AATCC Convention Papers

Radiant Heaters

Radiant-heating units operating in the infrared range with saturable-reactor control were shown by Radiant Heat, Inc., Central Falls, R. I. The control apparatus employed in the system provides constant temperature regulation while current flows through the elements continuously. The method reduces fluctuations of temperature to ±5° F.

Circle A-14 on Reader-Service Card



High-Speed Mixers

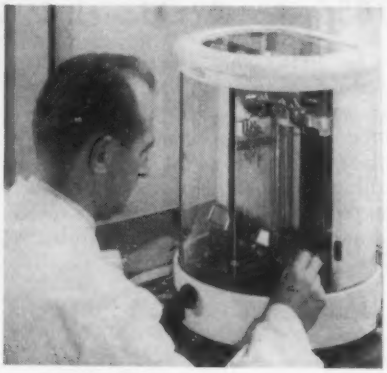
Portable mixers for various dyeing and finishing purposes were shown by Hermas Machine Co., Hawthorne, N. J. Designed to give thorough mixing with minimum air entrapment and foaming, the mixers can be supplied with rotors especially adapted to work best with various materials. The mixers are made in sizes from ⅓ to 10 hp. Larger models can be had on order.

Circle A-15 on Reader-Service Card

Ether for Wash Resistance

Solvitos HDF, a cold-water-soluble starch ether that gives good wash resistance when used with thermosetting resins, was shown by Morningstar, Nicol, Inc., New York, N. Y. The material is stable in solution and has no variation in viscosity, set-back, and retrogradation, even on freezing.

Circle A-16 on Reader-Service Card



Two-Pan Balance

A table-level dial for controlling weights is among the features incorporated in the Sartorius Projecta, a two-pan analytical balance shown by C. A. Brinkmann & Co., Great Neck, L. I., N. Y. There are no chains and no beam riders on the balance; weights are read on a projection screen. The Rapid model with a 200-gram capacity and 0.01-milligram sensitivity sells for $595.

Circle A-17 on Reader-Service Card

Electrostatic-Charge Detector

The Electro-Static Voltmeter, an instrument to detect and measure electrostatic charges generated on materials during processing, was shown by Custom Scientific Instruments, Inc., Kearny, N. J. The unit is portable and can be aimed like a gun. It is highly sensitive and has provisions to permit reduction of sensitivity.

Circle A-18 on Reader-Service Card

Finishing Latices

Geon 450x1 and Hycar 4501 were featured by B. F. Goodrich Chemical Co., Cleveland, Ohio. The latices are used with urea-formaldehyde and melamine-formaldehyde resins to produce wash-and-wear finishes. Hycar 4501 gives a soft hand, Geon 450x1 a full hand.

Circle A-19 on Reader-Service Card

Antistatic Agent

Niatex antistatic agent AG-2, a durable antistatic agent for synthetic fibers, was shown by Carbide & Carbon Chemicals Co., Div. of Union Carbide & Carbon Corp., New York, N. Y. The agent is supplied in the form of a water solution that requires no activation or extended period of high-temperature curing. It is easy to apply and imparts a pleasing hand to the material.

Circle A-20 on Reader-Service Card

Softener and Surfactant

A softener for Orlon and Acrilan and a surface-active agent for wetting and rewetting package-dyed and Sanforized material were shown by E. F. Houghton & Co., Philadelphia, Pa. Softex 596, the softener, is a white paste with high resistance to yellowing. The surface-active agent is called Surfax 1410.

Circle A-21 on Reader-Service Card

Print-Paste Thickener

A sodium-alginate print-paste thickener shown by Kelco Co., New York, N. Y., is designed to function in formulas with high pH. The product, Keltex S, requires no buffers or polyphosphates in its preparation and use.

Another sodium alginate compound with extra-high viscosity was also shown. Called Keltone, the product has increased stability when used with caustic buffers. With buffers, it functions well in printing pile fabrics.

Circle A-22 on Reader-Service Card

Color Tub

A 20-gal. color tub made from stainless steel with a seamless construction was shown by Kennett Equipment & Machinery Co., Kennett Square, Pa. The unit has a roll top to eliminate cracks and crevices that tend to catch color. Tubs are also available in 10-, 15-, 20-, 30-, and 50-gal. sizes.

Circle A-23 on Reader-Service Card

Detergent

Nopco 1479-D, a synthetic detergent for fulling and scouring, was shown by Nopco Chemical Co., Harrison, N. J. A modified alkylolamide, the product is specifically designed for the acid-fulling process where the goods are neutralized and fulled simultaneously. Advantages include: high soda-ash tolerance, hard-water stability, calcium resistance, and good wetting and penetration.

Circle A-24 on Reader-Service Card

AATCC Convention Papers

- **Technical papers presented at the 1955 national convention of the American Association of Textile Chemists & Colorists in Atlantic City, Sept. 22-24, covered a wide range of subjects of interest to bleachers, dyers, and finishers.**
- **Papers selected for presentation here are in condensed form.**

Improvements in Dyeing Synthetics

By P. L. MEUNIER, E. I. du Pont de Nemours & Co., Inc.

Advances in dyeing and finishing have contributed greatly to the success of the newer synthetic fibers. Some of the highlights of these developments are—

Orlon

The Sevron cationic dyes, supplemented by basic dyes, are used for the full range of shades on Orlon. Although some dyers prefer disperse dyes for light shades because of their level-dyeing properties, others use the cationic dyes with retarding agents.

High-bulk Orlon yarns are successfully dyed in skein-dyeing machines equipped with a double-bar skein rack and a hinged deflector plate to control liquor flow.

Orlon-wool blends are dyed successfully in one bath by starting the dyeing with cationic dyes for the Orlon and adding wool colors (acid, metallized, or chrome) at the boil.

New methods for partial stripping (up to 50%) of cationic dyes are based on the use of an anionic agent, Compound No. 8S and Dowicide A. New leveling methods to correct uneven dyeing involve rerunning the goods in a bath containing Glauber's salt, Capracyl leveling salt, and a retarder.

Acrilan

Dyes recommended for use on Acrilan knitwear are: for light shades —disperse dyes; for light to medium shades—cationic dyes or combinations of cationic and disperse dyes; for medium to heavy shades—acid, metallized acid, or chrome dyes.

Dacron

Disperse dyes can be used on Dacron for a full range of colors. The Latyl dyes developed especially for Dacron are used in combination with selected disperse dyes of the Acetamine and Celanthrene types. For special purposes, some combinations of azoic dyes are used.

For high-temperature (up to 250° F.) dyeing of Dacron, aromatic compounds such as orthophenylphenol are used as carriers.

Nylon

On spun-nylon piece goods and carpeting, good results are obtained by pretreating the goods with a leveling salt and ammonia at the boil, adding Capracyl dyes, and dyeing at the boil. Transfer and levelness are improved by dyeing at 235° F.

For nylon taffetas, barré and streakiness are reduced by treatment with Duponol D paste by either of these three methods:

1. Pretreat the goods with the paste; then dye at the boil with selected acid colors.
2. Scour with the paste and caustic; then neutral-dye at the boil with Duponol D in the bath; finish with acetic acid.
3. Dye at 235 to 250° F. with the paste and acetic acid in the dyebath.

Acetate

The new Eastofix disperse colors for acetate are aftertreated with fixing agents for washfastness.

Arnel is dyed with acetate colors at 205° F. For heavy shades, 250° F. with a carrier gives best results.

Fabrics dyed with selected disperse dyes are given better washfastness by heat-treating for a few seconds at 440° F.

Efficiency of Chelating Agents

By M. E. CHIDDIX, A. C. SIGNORE, and G. M. GANTZ, Antara Chemicals Dept., General Aniline & Film Corp.

Chelating agents have become important in textile processing in controlling metal-ion contaminants in processing liquors.

The earliest successful chelate was ethylenediamine tetraacetic acid (EDTA). A more recent product is N-hydroxyethyl ethylene diamine tetraacetic acid. (EDTA-OH).

EDTA is more effective in controlling copper in a peroxide-bleach bath than EDTA-OH, but the latter is more effective than EDTA in controlling iron in a soda-ash bath.

Existing test methods do not always indicate how a chelate will behave under plant conditions. Laboratory methods that simulate plant conditions may be more valuable than titration against calcium solutions or the complexing power as indicated by formation constants.

Time and temperature of peroxide-bleach baths or soda-ash baths affect chelating power to a greater or less degree, depending on the product being used. Balanced chelates are now available that work well under a variety of conditions and retain chelating power for considerable lengths of time.

Loss of Weight in Wool Dyeing

By JACKSON BAUER, Fred Whitaker Co.

The loss in weight of actual wool substance during processing can be great enough to be of serious economic importance. Natural losses in dirt, grease, and some actual fiber are expected; but harsh treatment will cause a serious loss of wool substance. Dyeing blends of wool and synthetics aggravates the condition because of longer processing time. Highly alkaline aftertreatment will cause serious wool damage.

Test Procedure

To determine suitable dyeing conditions to lessen wool loss and damage, in one experiment 64s dry combed top was mock-dyed under reflux condensers with 4% sulfuric acid for 4 hrs. Bath ratio was 50 to 1. After some initial experiments, wool samples that had been previously extracted with hexane to remove excess oil were used. Various protective agents were introduced to the acid baths to note any minimizing effect they might have on wool loss. Other factors, such as boiling times, acid concentration, and bath ratios, were varied.

Because some wool colors work best with acetic acid, tests of the effect of this acid on wool loss were made. The greatest loss occurred with 1% acetic acid, the least loss with 4%. There was an increase of loss at 8% and a slight decrease at 16%. The iso-electric point is at the 4% level, which accounts for the reduced effect of the acid.

Formic acid gave similar results. Weight losses with both acids averaged 1 to 2%.

Variations in temperature with 4% sulfuric acid showed that at 250° F. wool loss was up to 10.6%.

Reducing Wool Loss

Tests showed that boiling wool in 4% sulfuric acid for 4 hrs. in a bath containing formaldehyde improved wool-loss figures. When up to 12% HCHO is used, wool loss is at a minimum. The theory is that the formaldehyde combines with the wool, leaving a residue of about 0.75% that is still soluble.

Other aldehydes and other protective agents showed protective tendencies, but formaldehyde was best.

Tests on the treating liquors indicated the presence of colloidal hydrolyzed matter, generally in proportion to weight loss of the samples. Increased time, temperature, and acid concentration produced increased losses. Furthermore, the wool was left in a condition susceptible to further damage if given an alkaline scour.

Various scouring methods prior to dyeing showed varying degrees of damage. Soap-and-soda scours gave more loss than neutral detergent scours. Carbonizing affects wool substance loss, the sulfuric acid process being harsher than newer, recently developed methods.

If wool is protected with formaldehyde and glycollic acid, it may be dyed at 250° F. with little loss of substance or strength. The high-temperature method is promising for the application of acid premetallized colors that otherwise would require strong sulfuric-acid boils.

High-Temperature Dyeing

By R. J. ANDRES, Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc.

Dyeing at temperatures over 212° F. has expanded rapidly in the past five years. Advantages of pressure dyeing include smaller dye aggregates at the higher temperatures and activation of the polymer molecules that make up fiber structure. Both these factors favor dye penetration and assimilation.

Many dyes possess maximum affinity for cotton and rayon at 180° F.; so to promote penetration and levelness, it has been suggested to start dyeing at 250° F. for penetration and then cool gradually to 180° F. to get color value.

Wool can stand high temperatures for very short intervals but is safely dyed at 220 to 225° F. at pH 5 or less.

Nylon works well at 250° F. except in the presence of strong mineral acids, and there is an advantage in that dyeings at the high temperature are more level.

Dacron fiber is stable at 250° F. at a pH range of 3.5 to 8, and dyes level without carriers.

Type 81 Orlon can be dyed in a full range of shades at 250° F.; Orlon 42 works very well at 225° F.

In all cases, increased temperatures effect economies of time and materials and increase the quality of the dyeings.

Blends of various fibers must be dyed at temperatures that are safe for the fiber most sensitive to heat.

Machine Developments

Staple, top, tow, or yarn can be dyed in pressurized circulating kiers of conventional type.

Orlon 42 tow-dyed in pressure machines and then dried and cut under tension can be blended with low-stretch staple to form high-bulk yarn.

The Barotor has proved successful in handling many types of fabrics. Open-weave fabrics are being handled very well on beam-type machines. For nylon tricots, temperatures up to 290° F. for 30 mins. help to set the fabric so that final setting temperatures can be lower than those necessary for low-temperature-dyed fabrics.

Woven fabrics dyed by beam methods should be shrunk well prior to beaming and should be fabrics that are suitable for jig dyeing. Crepes, puckers, and densely woven fabrics work best in the Barotor.

Pressurized jigs and rotary hosiery machines have lately come into use. Knit goods made of Dacron and preset on a roll at 275° F. have been successfully dyed in pressurized rotary machines.

Dyeing, Heat-Treating Arnel

By FRED FORTESS, WILLIAM J. MYLES, VICTOR S. SALVIN, and WERNER A. SCHOENEBERG,
Celanese Corp. of America

Dyes selected for Arnel should give dyeings that meet the No. 3 AATCC washfastness test, resist sublimation at heat-treating temperatures of 425 to 450° F., and have optimum light- and gas-fading qualities. The dyes should have good bath stability at 200 to 212° F. and exhaust well for heavy shades with the help of accelerants.

Bleaching Arnel is done with peracetic acid, Textone, or acidified sodium hypochlorite. Heat-setting tends to yellow whites; so bleaching generally follows scouring and heat-setting.

Developed blacks of the Setacyl Diazo Black B, Eastman Diazo Black B, or Eastman Diazo Black SN types are recommended for Arnel.

Afterwashing after heat-setting will remove any traces of bronziness that might develop.

Pastel shades containing a small amount of blue present problems in either gas-fading or "O" fading. Such colors require the careful use of 0.5 to 1.0% of a co-dyeing inhibitor.

Dyeing Arnel Blends

Arnel-cotton blends are dyed with disperse and direct dyes. Salting should be delayed until most of the disperse color has been absorbed. When copper compounds are used to aftertreat some dyes, the fixative is applied in a final rinse. Resins may be used to improve dye fixation.

Vat-dyeing cotton blended with Arnel is practical. When the Arnel is to be reserved, cold-dyeing vat colors are preferred. Heat-treating before dyeing reduces any tendency of the Arnel to stain.

Arnel-wool blends require a three-bath process as follows:

1. Dye the Arnel with disperse colors.
2. Clear any color stains from the wool.
3. Dye the wool with fast colors such as acid or premetallized acid dyes.

A neutral dyebath for the first dyeing will help reduce wool staining. Inhibitors are added after the wool has been dyed. Where staining is negligible, the process can be accomplished in two steps.

Arnel-nylon blends can be dyed to shades of satisfactory fastness with the aid of an accelerator that will help drive the disperse dyes onto the Arnel. The nylon can be stripped and overdyed with acid or premetallized dyes if greater washfastness is required.

Arnel-Dacron blends respond to dyeing the Dacron with suitable dyes and a carrier. The fabric is then washed down to remove poorly fixed disperse colors from the Arnel. Then the Arnel is dyed with recommended disperse colors and emulsified tripropyl phosphate, which is an accelerant for Arnel only.

Heat-Treating Important

Arnel fabrics should be heat-set at 425° F. as uniformly as possible. Improved properties are noted at treating temperatures of 400 to 410° F., but maximum ironing and glazing resistance result from temperatures as high as 450° F.

Heat-setting can be done on the Morrison two-can machine or a National six-can machine. Both systems are gas-fired and temperature-controlled.

In the Morrison machine, only one side of the fabric touches the cans. On the National machine, the fabric alternates in face and back contact with the cans.

Times and temperatures of heat-setting vary with constructions, running from 435 to 450° F. at speeds of 20 to 35 yds. per min.

Tenters equipped with radiant-heat units have been developed to heat-set Arnel satisfactorily. This method is relatively new.

For Good Color Stripping—

By N. A. MATLIN and W. C. LINDSLY, Rohm & Haas Co.

In all cases, it is a good practice to scour the goods in preparation for stripping. In the case of wool, scouring is always necessary to remove oil that might interfere with stripping. Goods that have any type of finish on them must be scoured to remove the finish. Often, the finish can be removed only with an acid scour.

For cottons dyed with direct colors, boil in a soda-ash bath and strip with 5% (o.w.g.) sodium hydrosulfite at about 160° F. for 20 mins.

For cottons dyed with vat dyes, use 5% hydrosulfite and 5 to 10% (o.w.g.) caustic-soda flakes at 160° F. to reduce the color and dissolve some of the leuco-vat out of the fiber. If the stripping bath is flooded, about 10% of the color on the fiber will be dissipated. More color can be taken off by repeating the process, but it is not economical to repeat many times. It is often better to use additives in the reducing bath to couple with the leuco particles to prevent them from reentering the fiber.

Wool Goods

For wool goods dyed with acid or milling colors, scour with 5% (o.w.g.) aqua ammonia to clean the goods and remove some color by solvent action. Strip with 5% (o.w.g.) sulfoxylate adjusted to a pH of 5.2 to 3.5. Sometimes it is possible to cut the amount of stripper to 2.5 to 3%.

Formic acid (2.5 to 3% o.w.g.) is the preferred acid for adjusting the pH. Usually, it is added to the cold bath at the start of stripping, the bath raised to 120° F., and the dry stripper sprinkled in.

For wool dyed with chrome colors, boil with 1 to 2% (o.w.g.) sulfuric acid before stripping.

Rinsing after stripping should be thorough so that no stripper is left to dull the shades when the goods are dyed again.

Cool the goods slowly after stripping to prevent partial oxidation of the dye. Cooling may be done by flooding the bath or by dropping a small amount of the bath with the machine running and replacing it with cold water.

heat is important; and in spite of basic colors is often severe; the catalyst scoured, the viscose dyed, and the

Silk may be stripped with hydrosulfite or sulfoxylate.

Disperse dyes on acetate and nylon may be stripped with sulfoxylate in 45 to 60 mins. at as near the boil as the goods will allow.

Dyes on Dacron may be stripped with sodium sulfoxylate formaldehyde plus a swelling agent. This bath should be followed with a bath of sodium chlorite.

Orlon dyed by the cuprous-ion method may be stripped with sulfoxylate under mild acid conditions. If dyeing was done under pressure, stripping may be done under pressure. Stripping is most successful when the materials used are suited to the case.

Continuous Bleaching With Silicate-Free Peroxide

By **B. K. EASTMAN**, Buffalo Electro-Chemical Co., Inc., and **P. FELDMAN**, Dan River Mills, Inc.

Sodium silicate has long been recognized as the outstanding stabilizer for alkaline hydrogen-peroxide solutions used in bleaching cottons. With the advent of continuous bleaching, several drawbacks to sodium silicate developed. These drawbacks included a tendency to form scale that is deposited on the surface of equipment and the difficulty in washing silicate from the cloth. These difficulties created serious problems in many mills, particularly mills handling sheer fabrics or bleaching cloth prior to dyeing. Defects such as abrasion marks and broken yarns and interrupted production resulted.

Phosphates can replace silicates for formulating stabilized peroxide solutions that do not cause such difficulties. Calcium phosphate is the desired ingredient for the stabilization. Insoluble in water, the calcium phosphate is formed within the saturator and on the cloth by introducing to the saturator a solution of disodium phosphate buffered with borax. The concentration of disodium phosphate in the saturator can vary over a fairly wide range.

Cotton and water will usually supply sufficient calcium. To be on the safe side, particularly if the cloth has been scoured and/or if water of zero hardness is used, a small quantity of calcium-chloride solution is continuously added to the saturator.

The pH of the saturator solution is critical and will vary from plant to plant depending on type of material, treatment prior to bleaching, alkali carryover, temperature in J-boxes, and end use.

Batch- and continuous-dye results have been highly satisfactory on thousands of yards of cotton cloth bleached by the nonsilicate process.

The new system offers the following advantages: recovery of production previously lost while cleaning scale from equipment, reduction of seconds and rejects resulting from scale, and elimination of dye troubles caused by silicate compounds left in cloth.

Tips on Finishing Dacron

By **JOHN A. KOMNINOS**, Waldrich Co.

Some of the problems that occur in finishing Dacron fabrics result from variations in construction and variations in sizing compounds used in slashing.

A number of carriers have been experimented with in the past few years. Orthophenylphenol and diammonium phosphate are the agents now mostly used at this plant.

The preparation of goods received considerable study. Scouring baths varied according to requirements from solvent scours to those made up of built detergents and even straight solvent baths (Varsol #5).

Low-twist, open weaves scoured easily; high-twist, compact fabrics gave the most trouble. Solvent scours helped most with these difficult weaves.

Examination of fabrics disclosed that unsized warps lubricated with nonsaponifiable oils gave much trouble.

Storage of Dowicide A in damp or sunny places can produce an insoluble product unsuitable for dyeing. Oily droplets form that eventually stain the fabric being dyed in baths containing partially converted Dowicide A.

Solvent-emulsion carriers are sensitive to rapid changes in temperature, pH, and steam distillation. Furthermore, they tend to extract from incompletely scoured fabric sizing or lubricating materials and to produce unlevel work from this cause.

Right Dyes Not Troublesome

Carefully selected dyes have not been a major source of trouble. Tarring of dyestuffs under high-temperature dyeing conditions can be noted and poor dyes eliminated in the laboratory.

Pressure dyeing of Dacron eliminates carrier troubles, but improper scouring or improper sizing materials still cause trouble. Pressure dyeing gives superior fastness properties; and if heat-setting is required, it does not affect dyeing qualities. Heat-setting prior to dyeing does not work well in carrier methods.

Fabrics that are carrier-dyed may be affected in hand or dimensions when heat-set. The solvent-emulsion carriers do not exhibit this effect to as great an extent as the Dowicide A type.

Measurement and control of drying

heat is important; and in spite of good instrumentation in most plants, actual fabric temperatures are not too accurately known. Knowledge of exact temperatures is particularly important when additive finishes are applied to synthetics.

The effect of improper catalysts on basic colors is often severe; the catalyst may reduce washfastness considerably. Acidity of cationic softeners may also affect basic colors used to dye Orlon in the same way.

Blends of Arnel and viscose are preferably heat-set after dyeing the Arnel and drying the fabric. Then it is scoured, the viscose dyed, and the fabric finished.

Various modifications of hand and bulk on Dacron can be achieved with caustic-soda treatment, swelling agents, or cationic softeners. More-permanent finishes of the static-free and other types are needed.

What Causes Carpet Soiling

By JASON M. SALSBURY, T. F. COOKE, ELLIOT S. PIERCE, and PHILIP B. ROTH,
American Cyanamid Co.

Shoes are basically the cause of carpet soiling; air-borne dirt is less important because of its low concentration. Soil from shoes contacts the fiber and is ground in by high pressure and scraping.

Motion and pressure are important in lodging particles into places they would not normally fit. Fibers with a greater surface hardness will be more resistant to surface distortion. Greater surface elasticity also causes greater resistance to soiling because there is better deformation recovery and the disappearance of indentation after the shoe pressure has been removed.

Fabric Soiling Factors

Soil size and shape determine the amount of soil entering small irregularities in the fiber surfaces. The smaller the particle, the more soil retained.

Smoother fibers with round cross section tend to soil less than the rougher fibers. Soiling is also intensified by fiber oiliness; there is a combination of wetting of soil particles and mutual attraction of organic oil for organic fiber.

To reduce the soiling rate, a soil-resistant finish has been developed that appears to act like clean dirt. The mechanics of the process appear to be that the colorless soil occupies sites on the fiber that would otherwise be occupied by soil particles. The soil cannot be firmly attached and falls to the bottom of the pile, where it is easily removed by vacuuming.

The clean dirt also tends to make the fiber surface relatively smooth.

The Sandocryl Process— Modern Cuprous-Ion Dyeing

By C. H. A. SCHMITT, C. W. SAALFRANK, and H. R. WALKER, Sandoz Chemical Works

The Sandocryl process, when properly set up, makes the dyeing of Orlon 42 no more difficult than dyeing natural fibers with substantive colors. The essential feature of the Sandrocryl process is that the reduction of the copper sulfate is caused by copper metal instead of a chemical agent. This type of reduction prevents the possibility of a copper precipitation or degradation of the dye.

Depending on the type of dyeing, sheet metal, copper, wire mesh, or copper powder can be used. The only precaution necessary is the prevention of goods from coming into contact with the mesh or sheet metal; such contact will cause dark stains. The use of copper powder eliminates this possibility.

After several dyeings, wire loses about 50% of its weight and 30% of its surface area. The loss gradually retards the dyeing rate, which can be raised by increasing the copper sulfate and then adding a proportionate weight of new wire.

Copper used should be of electrolytic purity. When loose Orlon stock is dyed, copper sheeting should be inserted under the false bottoms of the machine or in the area between the bottom of the machine and the removable basket or plate supporting the Orlon stock.

Copper sheet should be inserted in package-dyeing machines as an inverted crown or lining between the package carrier and sides of the machine.

The easiest way to install plates in a dyebeck is to join a series of plates so the liquor can circulate between them. The plates should then be lowered into the front compartment or feed-box area.

Use Powder in Paddle Machines.

When materials are dyed in paddle or laundry machines, it is best to use a suitable grade of copper powder. The large surface area of powder allows deep shades with 1% powder based on fabric weight at a bath ratio up to 50 to 1.

Plate copper should have a total surface area of 60 sq. ins. per gal. of dye liquor. Wire mesh should be used as follows: 30 gauge, ¾ oz. per gal.; 24 gauge, 1⅓ oz. per gal.; and 18 gauge, 2⅔ oz. per gal.

Powder should be 1% of the weight of the goods.

Before dyeing, the goods should be scoured with a nonionic or a cryptoanionic detergent for 20 mins. at 140 to 160° F.

How To Dye

Addition of dyes and chemicals is as follows:

1. Add 1% nonionic detergent based on weight of fabric.
2. Add dyestuff while heating rapidly to 185° F.

pends on the dye, the liquor compo- and the need for shade similarity be- with direct dyes.

3. When bath has reached 185° F., add acid to make bath pH 2. Use either sulfuric or phosphoric acid.

4. Add copper-sulfate crystals in the same percentage as the dyestuff.

After all material has been added to the bath, raise to boil in 30 to 45 mins. and hold at not less than 205° F. until the bath is exhausted.

After rinsing, scour the same as in prescouring.

While many acid and direct colors can be used in this process, a selected line of fast anthraquinone dyes has been developed for best results.

Mothproofing Compounds Vary in Performance

By E. WALLACE BIRDSALL, Geigy Chemical Corp.

Many types of mothproofing compounds might be considered for a variety of end-use requirements. For example DDT, effective for storage protection, has no durability and sometimes causes a frosty appearance of the material by crystallizing on its surface. On the other hand, dyestuff-like compounds are effective for the usable life of the fabric because they are fixed on the fiber. There are three general classes of compounds based on their reaction with wool fibers.

1. DDT is representative of the first class, which includes chlorinated insecticidal materials. These materials have no affinity for the fiber and are generally deposited on the fiber as small crystals from a solvent solution or an emulsion.

Although this type of insecticide has been combined with substances having some affinity for wool, there has been only a moderate degree of success. These materials are not fast enough to satisfy customer requirements.

2. The second class of compounds, which have an affinity for wool, can be applied by exhausting an aftertreating bath. These materials include inorganic salts or compounds or inorganic salts with organic radicals. In their original state, they protect against moth and beetle larvae; but they have poor washfastness. Although the materials have good resistance to cleaning in laboratory tests with straight cleaning solvents, mechanical action in commercial cleaning, laundering, or spot cleaning affects them adversely.

Washfastness has not been attained even by combining these materials with resinous substances or polymers. The second group also includes several quaternary compounds that have good initial affinity but require high doses for adequate protection from beetles. These compounds also have poor washfastness.

3. The third group consists of materials that are applied like wool dyestuffs. These products can withstand normal processing and use. They are the only materials sufficiently durable to warrant the term "mothproofed." And there is no adverse effect on the fabric hand because the material is not deposited on the fiber surface but is contained within the fiber.

Pad-Roll Dyeing Reduces Costs

By C. G. ERIKSSON, H. LANDQUIST, and B. MELLBIN

Dyeing by the pad-roll system increases production and cuts labor costs 20 to 40% below those on becks or jigs. One pad-roll unit equipped with nine interchangeable chambers equals the production of 30 to 50 dyebecks processing 10 pieces each. There is also low investment cost and economy of floor space.

The system allows efficient processing of small lots—down to 100 lbs.—and makes it possible to increase the capacity at a small additional investment. Costs for heating, including drying and other treatments, are less than with any other method using direct dyes. Savings in steam are 1,500 to 2,500 lbs. per hr. at maximum capacity. There is low water consumption and optimum yield of dyes, with up to 30% savings for deep shades.

As in all continuous dyeing processes, the pretreatment of the fabric is very important. Pretreatment allows an evenly rewettable fabric and imparts even chemical and physical properties. It is best to pretreat in the open width under minimum tension, especially for rayon fabrics.

Some cotton fabrics have been successfully boiled off on the pad-roll machine instead of being kier-boiled. Chlorite bleaching on the machine has given good results, and there is no corrosion problem. Sometimes, it is possible to pretreat in rope form; but this method is inadvisable with fabrics that wrinkle easily.

Pad at Low Temperatures

Because the fabric is in contact with the pad solution in the trough for a sufficient length of time, there can be good impregnation at relatively low temperatures, often about 40° C. The low temperature is valuable in preventing concentration changes in the pad solution caused by rapidly absorbed dye.

Some fabrics require a high squeezing action, especially when the fabric is uneven, for more-uniform distribution of the padded solution on the fabric. The low liquor ratio also decreases the tendency for the dye to transfer between parts of unequal affinity.

The dyeing temperature, which de-

pends on the dye, the liquor composition, and the fabric, should be as high as possible. For direct dyes or cellulosic colors, the accepted range is 75 to 90° C. The dyeing time is dependent on the fastness required and the need for shade similarity between the beginning and end of the run. The time, easily determined from laboratory dyeings, should vary from 1 hr. for light shades to 8 hrs. for very deep colors on cellulosic fibers with direct dyes.

Fabric with light and medium shades can be dried immediately after dyeing. However, rinsing after dyeing is recommended if fabrics are to be treated afterwards.

Catalysis Problems

By D. D. GAGLIARDI, Gagliardi Research Corp.

The increase in use of chemical finishes has brought about problems concerning the catalysts to use with various classes of organic compounds. The simple urea-formaldehye resins applied alone are successfully catalyzed by following manufacturers' directions; but when combinations of UF resins with other products such as water repellents, dye fixatives, or resins of different chemical nature are used, application problems and fabric problems arise.

Application problems include bath stability, compatibility, corrosion, fumes, and other factors. Cloth problems to expect are damage to shade and fastness properties, odor, fiber damage, spotting, dermatitis, and others.

Most resins in common use will cure with acid-forming catalysts. Silicone resins require selective catalysts and work best when applied alone.

Regardless of the type of catalyst used, soluble side products are formed and traces of elements and compounds are left in the cloth after curing. The total effect of these by-products is not clearly known, but they may produce odors if they are not removed by afterwashing.

Catalysts and their reaction products are not alone in causing trouble. Metal salts, alcohols, glycols, sugars, proteins, and unreacted base are present, in addition to stabilizing materials added to the resin during manufacture.

Softeners Also Guilty

Cationic softeners frequently used to modify hand contribute their share of unnecessary and possibly harmful trace materials. Dye fixatives and nondurable water repellents may also leave traces. Resin-based water repellents contain many elements that do not contribute to the general effect.

The possibility of inter-reaction of these trace materials in compounded finishes cannot be overlooked in a search for causes of fabric defects.

Curing-time estimates may be inadequate when attempts are made to catalyze diverse types of products according to previously accepted practice. In some cases, no curing will occur because of selective action of the catalyst for some component of the mix.

Because 3 to 4% of materials left on the cloth are not fixed, they should be removed by a thorough afterwashing. Otherwise, the effects of organic and inorganic materials can cause trouble that is difficult to pinpoint.

Blame is often placed on the catalyst when the real cause of odors, loss of strength, etc. lies with the residues of the reaction and contaminants.

Dyeing Rayon Tufted Carpeting

By L. L. WALMSLEY, American Viscose Corp.

Most dyeing of tufted rayon carpeting is done with direct colors because they are satisfactory for the purpose and relatively easy to apply. Lightfastness requirements of at least 20 hrs. for light shades and 40 hrs. for dark shades are usually met. Washfastness at 120° F. and resistance to spotting are desirable. Level dyeing qualities are imperative.

Most dyeing of tufted carpets is done in dyebecks of suitable width and heavy construction. New developments include forced circulation in becks, pressure dyeing in roll form, and some experimental work with the Barotor. A continuous process employing the Niptrol pad is showing promise.

The development of better machinery for piece-dyeing is being encouraged because piece-dyeing presents fewer problems of inventory than stock-dyeing, and it is less expensive.

After dyeing, the carpet is extracted, fluffed, and dried. One of the current problems is high water content after extraction. To dry very wet carpet, excess heat is required that can cause yellowing, shading, and spotting. Most extractors today leave approximately 100% moisture in the carpet; 70% would be more satisfactory in many ways.

Overdrying Causes Discoloration

Although backing fabrics can cause discoloration if not thoroughly scoured during the dyeing process, the primary cause of discoloration is overdrying. Both excess time and temperature are responsible, and the pH of the carpeting is an important factor. Slightly acid conditions are preferred; pH 8 or 9 will tend to increase discoloration. Experiments show that an acid rinse prior to drying is good insurance against discoloration.

Discoloration that varies across the piece may be caused by uneven air flow in the dryer or uneven temperature. Variations in moisture may be responsible for discoloration.

Acetic acid, boric acid, or aluminum acetate are suitable for acidic rinsing and will produce a pH of 5.5 to 6.

Direct colors that are not sensitive to an acid pH should be chosen. Avoid drying temperatures over 300° F.

Soil-Resistant Finishes Important

Because rayon tends to soil more readily than wool, soil-resistant finishes have been developed. Colloidal silica or other metallic oxides in 0.5- to 10-micron particle size are suitable. These materials fill up surface irregularities that normally would trap soil particles.

Application is in the final rinse or by spraying the wet but extracted fabric. Excess amounts may result in dusting or harshness of hand. Harshness has to some extent been accepted as preferable to easy soiling. Some softeners have been found that help reduce harshness without affecting soil resistance. Lightfastness of the direct dyes may be affected by the softeners.

FIRST OPERATOR controls the belt, which is stopped every 30 min. to allow operators to change jobs.

Half-Hose Packaging—

MARKING to BOXING in 90 Secs.

• Conveyor belts at Union Mfg. Co. save space and time in processing men's socks

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

CAREFUL ORGANIZATION and regular rest periods help Union Mfg. Co., Union Point, Ga., to get top production from a conveyor belt where all operations from size marking to packing are completed in 90 secs. The average production is about 5,000 doz. socks per day on two conveyor belts, but some lines can be processed at 300 doz. per day per operator.

The two conveyor belts are arranged side by side in the finishing room with the loading end of the belt near the finished stock racks. The delivery end of the belt is close to an automatic conveyor system that transports goods to the shipping room.

The conveyors, built by Textile Trimming & Boarding Co., are each 40 ft. long. The speed is set at 45 ft. per min. Spacing of the goods determines the production rate; the belt speed is not changed.

The leaves have been removed from the conveyor to prevent vibration, and carpet pads are fixed under the transfer positions to lessen shock.

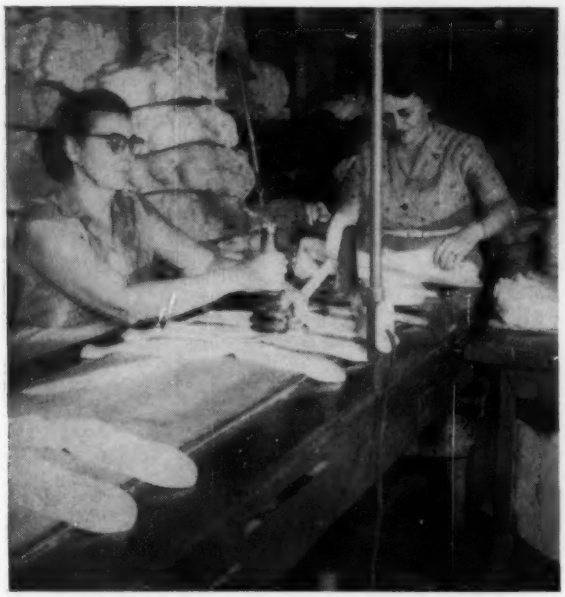
Belt Stopped Every 30 Mins.

The conveyor is controlled by the first operator from a foot pedal, which operates a mercury switch to stop and start the belt. The belt is stopped every 30 mins. to relieve transfer operators. This work is more strenuous than the other work, and the operators change jobs every 30 mins.

The girl at the supply station is a trained operator who takes over any job where a worker has to be relieved for a short time. If extra operators are needed to fill in for absentees or for special styles, they are drawn from the mending and pairing sections.

Supplies for the conveyor, such as order tickets, transfers, and labels, are kept at a station between the two conveyors. One girl is in charge of the station and keeps all operators on both conveyors supplied with the current tickets and transfers.

The two conveyors are in Howard Lenkford's charge. He is responsible for keeping the conveyor supplied with the correct work.



SIZE MARKING is the second operation. The transfer iron is suspended by a spring over the belt.

FINISHED GOODS are tied in bundles on this machine. The socks take 90 secs. to travel the belt.

After the socks have been mended and paired, a machine is used to apply pin tickets. The finished goods are stacked in racks according to the customer's order.

When an order is received from the office, the order is put together by Howard and the box and label tickets sent to the box and supply stations. The ticket is returned to the goods when the boxes and labels are ready.

The socks are stored on boards and lifted to a table near the head of the conveyor when more work is required. At the start of each new order, the ticket is placed on the conveyor, and operators check their new marking supplies.

Operations Done by 14 Girls

Here is a breakdown of how 14 girls are arranged along the conveyor for a typical style:

Operator No. 1 lays one pair of socks at a time on the conveyor. The sock position on the conveyor depends upon the marking specifications. For instance, socks are run with the toes to the left where a size mark is required on the upper heel, while the toes are turned to the right for sizes to be marked on the lower heel.

Operator No. 2, positioned on the right side of the conveyor, stamps each pair of socks with a size marker. A bridge stretched across the conveyor supports a roll of transfers. With the left hand, the girl positions the transfer while the hot iron is brought down over the transfer. The iron is suspended on a spring hanging on a bar 2 ft. from the bridge. The used transfers fall off the edge of the conveyor. The girl feeding the conveyor informs the transfer girl of each change in size.

Operator No. 3 turns over the socks. She uses both hands to turn the socks in twos.

Operator No. 4 turns the toes over to the heels.

Operator No. 5 applies trademark transfers from a bridge over the belt.

Operator No. 6 works on the opposite side of the belt and attaches rider tickets to every third pair of socks.

Operators No. 7 and 8 do the same work as the No. 6 operator.

Operator No. 9 stacks the socks in bundles of threes or sixes.

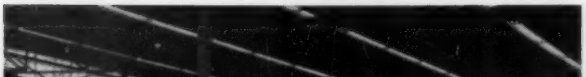
Operator No. 10 wraps every fourth bundle with a paper band.

ELECTRIC HOIST, close to the conveyor end, automatically transports trucks to the shipping room.

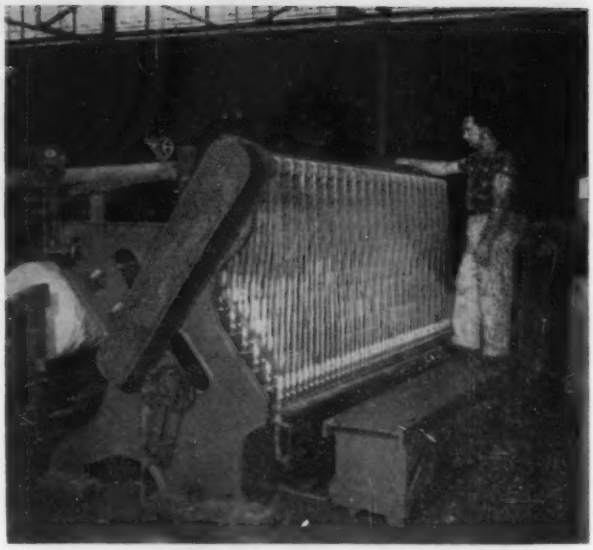
Operators No. 11, 12, and 13 do the same work as the No. 10 operator.

Operator No. 14 lifts the bundles from the belt and lays them on a Saxmayer National bundle tier. This machine wraps two strings around each lot and ties the strings.

The finished packages fall into a truck. When the order is complete, the truck is picked up by an Electrolift hoist and automatically transported to the shipping room for delivery to all parts of the country.



NEW ADDITION doubles the size of the original plant built two years ago and follows the original pattern of masonry-and-steel construction.



FILLING WINDING brings back an old-time Whitin machine. The filling in both shuttles on cut-pile looms must be of even length.

New CARPET-WEAVING MILL Makes Cut-Pile and Looped Carpets

Belrug Mills has constructed two new buildings in two years to weave cut-pile and looped carpets. The mill has developed its own looms and devices to weave the carpets.

By **RICHARD B. PRESSLEY,** Associate Editor, TEXTILE WORLD

Belrug Mills, Inc., Greenville, S. C., is effectively using specially built looms to weave both cut-pile and looped carpets. Two adaptations of special looms or special loom motions make it possible to weave both types of carpets. The mill contains 35 looms.

Weaving results at Belrug are shown best by recent modernizations. Just two years ago, the mill moved into a completely new masonry-and-steel building. Four months ago, an addition of 54,000 sq. ft. of floor space was completed, to bring the total area to 107,000 sq. ft.

The weaving operation requires only natural humidity; so no humidification equipment is used. The office is air conditioned. Double-deck windows in the mill furnish adequate ventilation.

Over $250,000 worth of new equipment has been installed in the plant addition. The equipment includes new looms and new finishing machines.

W. W. Pate, president of the individually owned company, believes in planning his expansions to keep the business on a sound financial basis. At the time the first building was constructed, plans were already made to expand in two years; and 43,000 sq. ft. will be added to the present structure later. The planned expansions are resulting in buildings dovetailed into each other in a single architectural style.

Production results at Belrug are somewhere between that of a straight weaving operation and tufting. For example, on the newest loom, two pieces of 15-ft.-wide cut-pile carpet are woven at once at 64 ppm. In effect, that is a 15-ft.-wide carpet rolling off the loom at 128 ppm.

The newest looms at Belrug are a 12-ft. and a 15-ft. loom made by Lansdowne Steel & Iron Co. The looms have two shuttles picking simultaneously in conventional cut-pile manner. There are, of course, two warp sheds. A single, oscillating knife at the loom breastbeam cuts the two woven carpets apart.

The warp shed comes from four yarn beams; two are end-to-end ground beams, and two are located directly over the ground beams. The pile fabric is furnished by two elevated yarn beams back of the upper warp-shed beams.

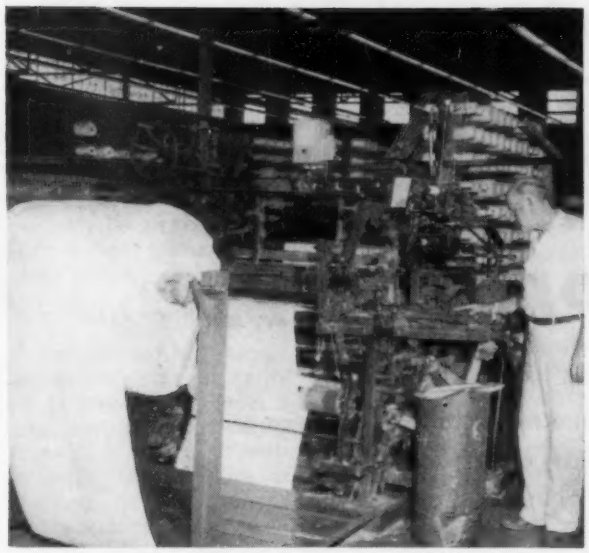
Special Looping Motions

The two new looms are much like older 9-ft.-wide looms built by Service Machine Shop. Belrug has had these looms in operation several years.

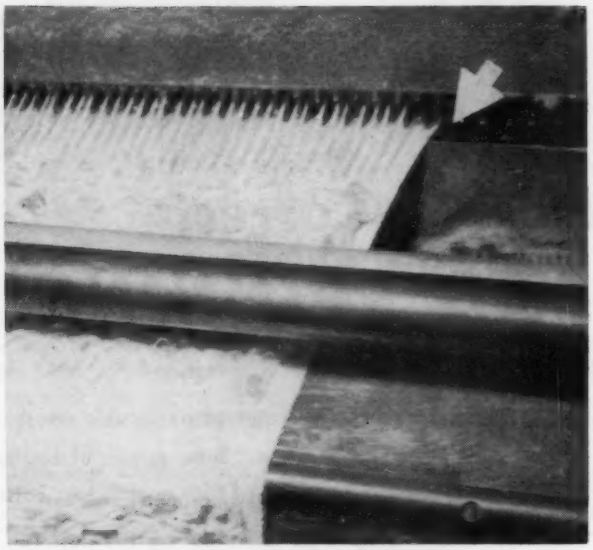
Looped carpets are woven on Draper K-model looms and Crompton & Knowles W-2 looms. Both types of looms are equipped with a special motion to put in loops. Narrow scatter rugs are woven on K-model looms. Carpets 2, 3, 4, 5 and 6 ft. wide are woven on W-looms.

Dobbies are used on K-model looms, and Knowles heads are used on W-looms.

The looping attachment contains a



LOOPED CARPET 2 ft. wide is woven on a C&K loom. A creel at the loom is used for the yarn. Dead picks are made at the loop.



LOOPING DEVICE picks up the ends to be looped with hooks (arrow). The ends are pulled out and twisted around themselves to form a coil.

series of hooks on a carriage located at the front of the handrail over the loom lay. The carriage has three movements: (1) it swings sideways and backward to pick up warp ends, (2) then it swings forward to pull the loops out, and (3) it moves sideways to twist the loops.

Loops vary in length from 1 to 1½ ins. When loops are to be put in the carpet, the regular warp shed drops down, the warp shed containing the loops comes up, and the hooks on the carriage move back to pick up the ends. Then the carriage completes its cycle.

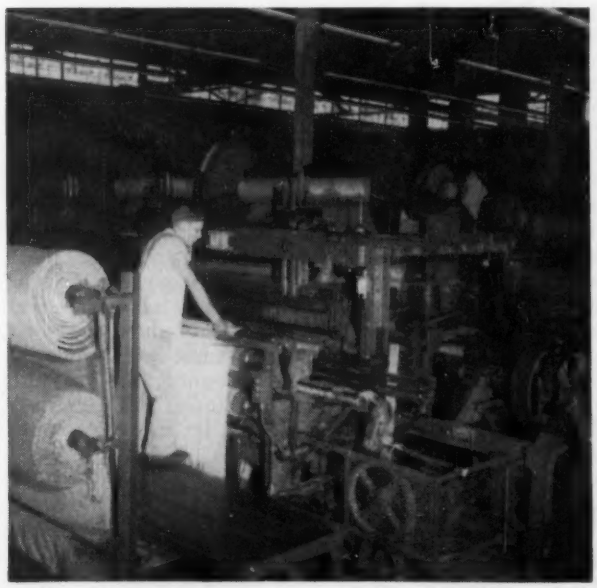
While the loops are being made, the picking motion is dead. On C&K looms, a second cell of the shuttle box takes the dead picks. On K-model looms, Belrug's own attachment makes the dead pick.

Warp yarns are located on a creel back of the loom. The tension on the loop ends is released when the loops are being made.

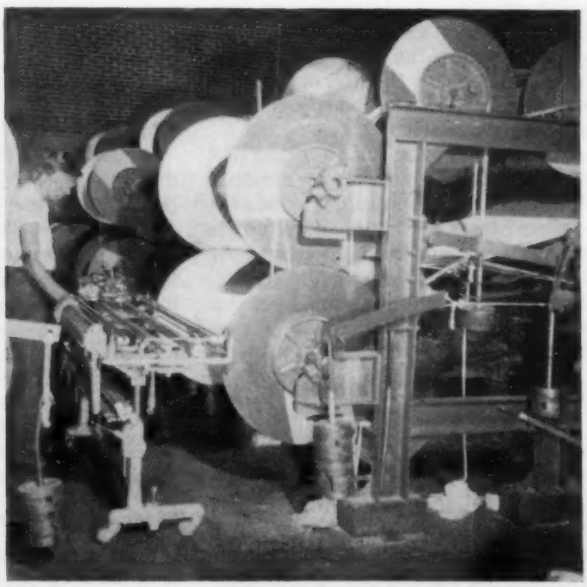
Cotton and Synthetic Yarns

Yarn construction is standardized. Cotton yarns are 8/3, and all-cotton backing is woven on all carpets. All yarn is bought from yarn mills in 3½-lb. cones. There is approximately 78,000 yds. of yarn on a cone. The average number of ends in the carpet backing on the 12-ft.-wide loom is 14,000; the total pounds of yarn for the backing on this loom is about 10,000. Belrug uses about 50,000 lbs. of cotton yarn each week.

The pile-fabric yarns are cotton, nylon, and nylon-and-viscose blends. Nylon yarns are 4/3; viscose yarns are 2/2. All pile yarns and loop yarns are packaged-dyed by the yarn manufacturers. There are 700 lot colors in scatter rugs. The 9-, 12-, and 15-ft. carpets are made in 40 colors.



CUT-PILE CARPET 15 ft. wide is woven on a Lansdowne loom. Two shuttles pick simultaneously through two warp sheds to weave double.



TYING IN is done with a Titan portable machine. Since looms have up to six yarn beams and 8/3 yarn is used, the machine is kept busy.

is making his rounds once or twice a shift to sew the tapes. More often than

Humanics — **A TW Brief**

How To Correct
BAD SPINNING PRACTICES

Spinning practices that cause trouble can be corrected by careful supervision and employee cooperation. Some causes of bad spinning are—

- **Cutting slack belts improperly**
- **Changing draft gears during the doff run**
- **Piecing up with greasy hands**
- **Piling roving in double rows**
- **Fanning while frame is running**

By MARCUS C. GROSS

MANY BAD PRACTICES in the spinning department either go unnoticed, or correction is made and then forgotten. Often the same bad practices occur time and again. The supervisor is sometimes to blame for these conditions, although he personally may not be responsible for the actual neglect. His over-all responsibilities include the prevention of bad spinning practices.

One of the bad practices that is common concerns the cutting of slack belts. Cutting should be done at the doff or during the regular lunch period. If necessary, the fixer or belt man can take his lunch period before or after the regular period.

Cutting slack belts during the doff interval with frames running creates a bottleneck in a rotative doff, since the doffers bypass the frame and return to doff it at the end of the doff run. Almost invariably, the frame is idled until the doffers come to it again. Then it is started once more in line with the rotative doff.

Bobbins Should Be Full

It is a poor practice to doff a frame that has bobbins, especially filling, that are not quite full. This action usually brings protests from battery tenders. Filling or warp production is needlessly lost and can never be recovered, but the loss can be prevented. The section man should make a daily belt inspection and earmark those belts to be cut on the frames' regular downtime.

Another bad practice concerning belts involves the doffers. In starting up frames after doffing, many doffers "ride" the belt half on the loose pulley and half on the tight pulley and then forgetfully leave the belt to run that way. The spinner sometimes spots this condition and shifts the belt to the full face of the tight pulley. Whenever a supervisor or section hand sees a condition like this, all doffers—not just the offenders—should be notified of this bad practice. In addition to slowing down the frame, riding belts can cause soft bobbins that may slough off in the succeeding processes.

Draft gears should be changed on the doff, never during the doff run. If the gears are changed during the doff run, cut or bruised yarn is made when the gears are disengaged and the full torsion is released from the back rolls. This bad practice can be serious in viscose and viscose blends because the defects appear as chafed yarn. Chafed yarn is especially noticeable in filling yarns, and it is important to pass this cut or bruised yarn into the bunch that later will be stripped into waste.

Start Frames on Time

Starting and stopping frames on time is a good practice, but it becomes a bad practice when spinners take 5 to 10 mins., or longer, to start up their frames at the beginning of the shift or at the end of the lunch period.

In one mill where a green-light system is employed, all spinners must be at their frames 2 mins. before the start, at which time a clearly visible green light is flashed from a large bulb in the ceiling of the spare floor or near the center of the room. The green light again is flashed two minutes before stopping time. In this mill, the fixers and general help who know how to start and stop frames assist the spinners.

Loss of production can be serious if slow starting is not kept under constant surveillance by the supervisors and other key personnel.

Another bad practice is for spinners to piece up a frame after scouring and then let the frame run to a full doff. The scourers' hands are greasy and oily; and even with good care, some of this oil and grease gets on the rolls and aprons. In this mill, the head scourer has a box of short ends that he takes with him from frame to frame. After scouring, the ends are placed on the spindles and pieced up. The frame is run for at least 15 mins. and is then doffed. All oily or greasy yarn goes into the pieces; when the pieces are full, they are stripped into waste.

It is not uncommon to see bobbins partly filled and four spindles stopped at the time a tape breaks. This situation may occur while the section hand

is making his rounds once or twice a shift to sew the tapes. More often than not, the four spindles are out of production until the next doff when the piece-up is made. Piecing up is done when the ring rail reaches the nose of the taper on the filling or when the warp bobbins attain the same diameter. The amount of lost production can only be surmised, but the loss is high if tapes are sewed only once or twice a shift.

Sew Tapes Immediately

The section hand should be notified immediately by the spinner as soon as she sees a broken tape. The section hand should have a supply of precut tapes on hand and a sewing machine available. He should immediately sew the tapes on with a minimum loss of production. The tapes can be sewed and the bobbins put back into production in 5 mins. or less.

From the standpoint of quality and good housekeeping, roving should never be piled in double rows on the top creel. If the bottom rows stay on the creel for any length of time, the roving becomes dirty, bruised, and lint covered, even though the bobbins are apparently covered by the top row. A systematic roving layout should contain groups of five or six bobbins with a space between each group. Such a grouping also makes it easier to clean the top creel.

How often should front-roll speeds be checked? The answer is at least once monthly, or twice if possible. Checking speeds is an excellent precautionary measure for slack belts that may not appear slack enough to cut but are causing the front roll to lose speed. Such a check can uncover a wrong pulley or an occasional wrong twist gear even though these bad practices are not common. Speed indicators are recommended.

A common bad practice that should be eliminated is for the spinners to fan their running frames. Fanning raises much lint, some of which is fanned into the spinning ends. Fanning the frame and ends should be done only during the regular blowdown, and lint that cannot be fanned off should be picked off by hand before the frames are started up.

Multipliers Can Vary

Incorrect use of multipliers can cause loss of production. It is a common saying that the warp has a 4.75 multiplier and the filling has 3.50. However, it should be remembered that the longer the fiber, the longer the cling in the strand. All warp multipliers do not necessarily have to be 4.75; in one mill where 1 3/32-in. staple

CONTINUED ON PAGE 192

Humanics — **A TW Brief**

Rate Yourself On Supervisory Skill

By AUREN URIS
Research Institute of America

How do you look to your employees?

Your prestige plays an important part in your supervisory success. If your workers are with you, the job's easy. If they're against you. . . .

The fact is, people can and will work wonders for a boss they admire and respect.

This quiz shows how you've been doing and what you can do to win the whole-hearted cooperation of your workers.

	Yes	No
1. Do you make it a point to apply the rules to everyone fairly and impartially?	___	___
2. Do you occasionally make exceptions—in granting privileges, for example—when the circumstances warrant?	___	___
3. Do you make it your business to spend some time, even if it's only a brief chat, with each employee in your department during the week?	___	___
4. When an employee has done a good job—		
a. Do you let him know you know?	___	___
b. Do you let others—fellow employees, his immediate superior, your superior—know of his accomplishment?	___	___
5. When an employee has pulled a boner somewhere down the line, do you—		
a. Show you're less interested in giving him the back of your hand than in finding out why he went wrong?	___	___
b. Take constructive action that will prevent recurrences?	___	___
6. Do you let your employees learn from your mistakes by admitting an error when you've made one?	___	___
7. When an employee takes a stand in an argument or controversy—		
a. Do you back him to the hilt if you think he's right?	___	___
b. Do you try to get him off the hook gently, if he's wrong?	___	___
8. In any group, it's difficult not to like some people better than others; but—		
a. Do you consciously try to avoid having your personal feelings fog up your fairness?	___	___
b. Do you try to get him off the hook gently, if he's comparing the performance of your people?	___	___
9. Do you use encouragement—		
a. To help the person who's failed to get up off the floor for another try?	___	___
b. To get the man who's got a lot on the ball to get in there and really pitch?	___	___

Your Score

Give yourself 10 points for all questions answered Yes. After you've totaled your score, rate yourself according to the following chart:

120 to 140—Super

90 to 120—Good

Below 90—Reread the questions answered No to see what you can do to improve.

Card-Grinder Training—

HOW TO SET CARDS

This third and final article of a series of pictures and captions on how to set cotton cards covers—

- **Flats**
- **Plates**
- **Doffers to cylinder**
- **Doffer comb**

For the first two articles of the series, see TW, Jan., p. 102 and June, p. 144.

By P. C. KOCHHAR, Industrial Rayon Corp.

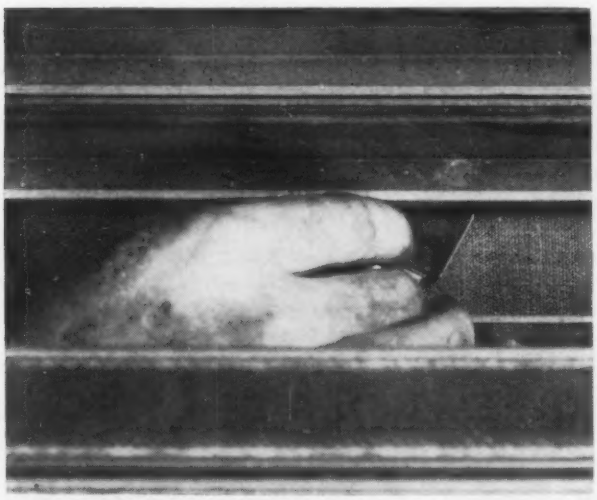
Setting the Flats

In preparation for setting the flats, remove two flats from the flat chains. Count off the next six flats, and mark the seventh and eighth flats for removal. Repeat this count three more times so that you have marked for removal two adjacent flats at five places on the chain, with six flats remaining between the marked flats.

With a hand crank, run the flat chains around. As the marked flats come up to a point where they can be easily removed, take them out of the chains. When all the 10 marked flats have been removed, run the flat chains around until the blank places are over the five flat-adjusting stands of the arch. The blank toward the back of the card should be directly over the top edge of the back knife plate of the card.

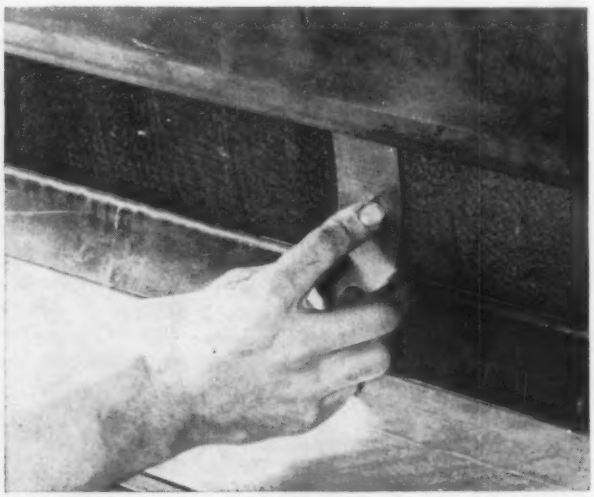
Remove the front and back knife plates, clean them, check them for rough places; and if they are all right, put them back on the card.

Photos taken at N. C. State College.



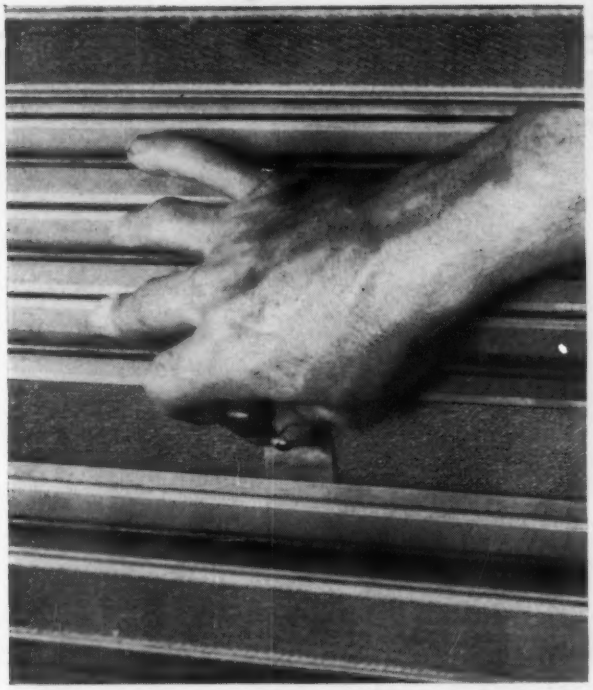
FLATS TO CYLINDER . . .

Starting at the back of the card, set the flats to the cylinder at each of the five setting stands and at each side of the card. Be sure to get the same feel on the gauge between the flat and the cylinder all the way across the card. Adjust the flat by backing off on the nut to pull the flat away from the cylinder, not toward it. After all the stands are adjusted, recheck each of the flat settings.



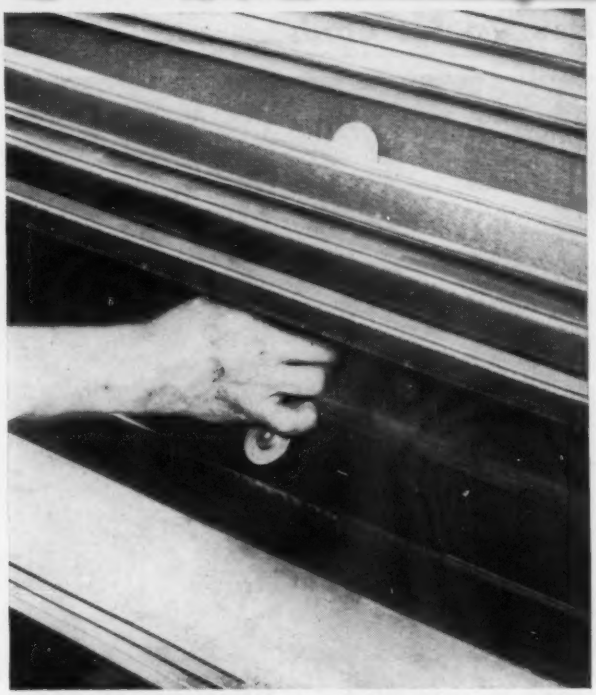
BACK KNIFE PLATE (bottom) . . .

With a leaf gauge, set the bottom of the back knife plate to the cylinder. The plate is supported only at the ends where it is screwed to the arches of the card and may get out of line. If it is nearer the cylinder in the middle than at the ends, shim it with strips of waterproof paper inside the screws. If it is nearer the cylinder at the ends than at the middle, shim it outside the screws.



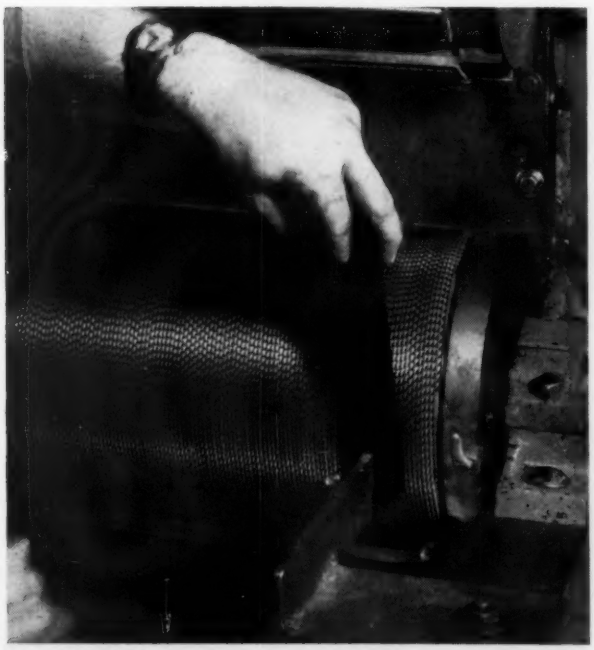
BACK KNIFE PLATE (top) . . .

With a flat gauge, set the top of the back knife plate to the cylinder. This setting must be made by reaching into the flat chains and inserting the gauge under the top edge of the knife plate through the blank space where the first two flats were removed from the chain.



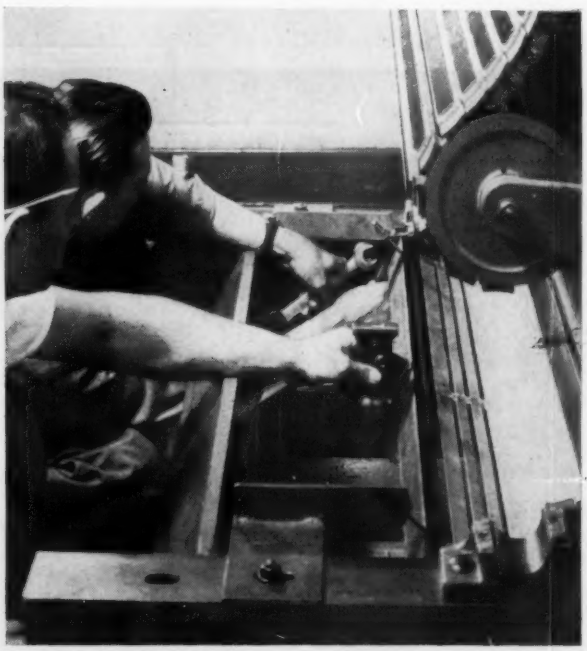
FLATS TO BACK KNIFE PLATE . . .

With a leaf gauge, check the clearance between the flats and the top edge of the back knife plate. If the setting is not correct, open or close it the required distance by moving the plate down or up until the setting is right.



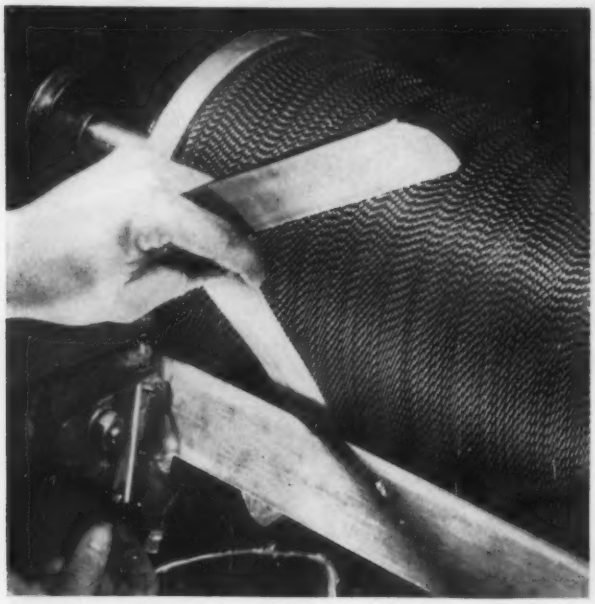
MOTE KNIFE TO FEED PLATE . . .

With the lickerin in place, bolt to each side plate of the card frame one of the gauges used for setting the top mote knife to the feed plate. Use a leaf gauge to set the lip of the gauge, which corresponds to the lip of the feed plate, to the lickerin. Put the mote knives in their brackets and bolt the brackets in place. Set the adjusting screw tips of the feed-plate gauges for the clearance desired between the feed plate and top mote knife.



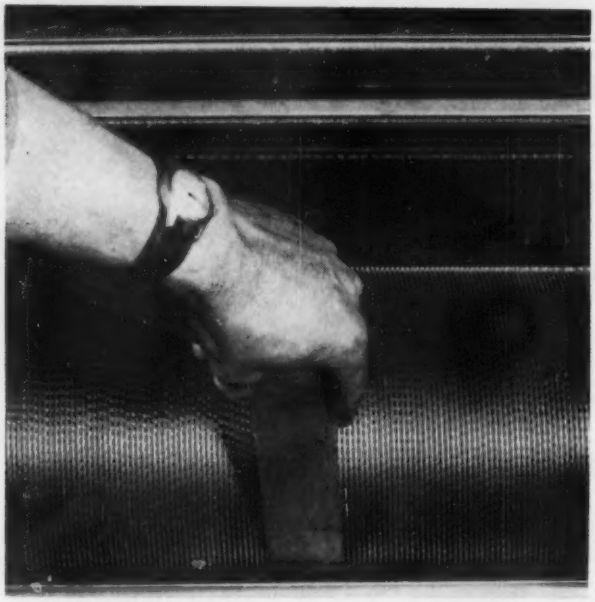
MOTE-KNIFE ANGLE . . .

With the lickerin out again, use the mote-knife-angle gauge to set the top mote knife to the desired angle by moving the mote-knife brackets. The top edge of the mote knife should touch the adjusting-screw tips to place the mote knife the proper distance from the feed plate. The feed-plate gauges may now be removed from the side plates of the card frame and the lickerin once more placed in running position in the card.



MOTE KNIVES TO LICKERIN . . .

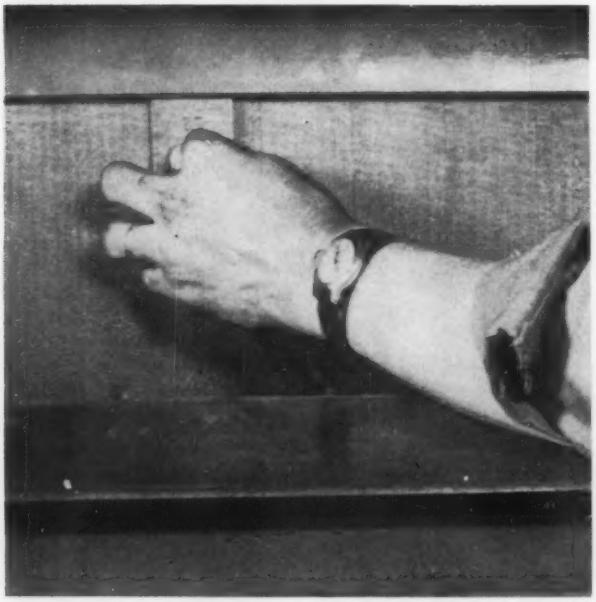
With the lickerin back in, use a leaf gauge to set the bottom mote knife to the lickerin. In making this setting, be sure that the top mote knife is deep enough in its bracket slot so that the top knife does not interfere with gauging the bottom-knife setting. If the bracket has knife lock nuts, lock the bottom knife in place and recheck the setting. When the bottom knife is properly set, follow the same procedure for setting the top knife.



FEED PLATE TO LICKERIN . . .

Be sure that the edge of the feed plate is clean; then set it on the side plates of the card frame and bolt it loosely in place. With a leaf gauge, set the feed plate the required distance from the lickerin and tighten the bolts that lock it to the card frame.

You are now through with the back of the card and are ready to replace the lickerin bonnet, feed roll, scavenger and fly rods, and lap stands.



FRONT KNIFE PLATE TO CYLINDER (top) . . .

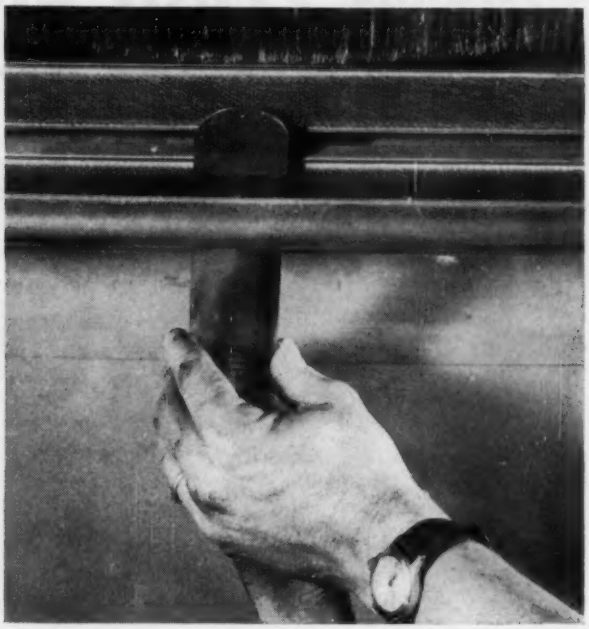
After finishing the back of the card, you are ready to run the flats around again and replace the 10 flats removed from the chain. Then, with a leaf gauge, set the top knife plate to the cylinder. Shim the ends (see back-knife-plate setting) if necessary to straighten the plate. Check the clearance between the top edge of the plate and the flats. Correct the clearance by moving the plate up or down.

FRONT KNIFE PLATE TO CYLINDER (bottom) . . .

With the leaf gauge, set the bottom knife plate to the cylinder. After this adjustment is made, close the stripping door and make certain that it fits properly against the top and bottom knife plates. If an adjustment is needed, set the top edge of the door against the bottom edge of the top plate; then bring the bottom knife plate up or down as needed to fit snugly against the stripping door.

DOFFER TO CYLINDER . . .

With the fly rod removed from the angle of the doffer bonnet and bottom plate, loosen the doffer bonnet and pull it forward so that it will not interfere with your gauge. Then, with the leaf gauge, set the doffer to the cylinder. Slide the bonnet back in place, set, and tighten it.



FLAT COMB TO FLATS . . .

With the leaf gauge, set the flat comb to the flats. This setting should be made when the lower edge of the flat is nearest the comb; as the flats run, the edge of the flat is slightly nearer the comb than the center of the flat as it makes the curve to reverse directions of travel.

DOFFER COMB TO DOFFER . . .

Replace the doffer-comb assembly, and check the comb for loose fingers and the blade for rough places. With the leaf gauge, set the comb to the doffer. This setting should be made with the comb in the position that places the teeth of the blade closest to the doffer wire.

Starting Up the Card

You are now through setting the card. Replace the pulleys, side shaft, and all belts. Before you start the card, turn the cylinder by hand and listen for rubbing in any part of the card. If you hear none, start the card briefly with the belt or motor, and listen for rubbing again. If you still hear none, start up the card.

For the first few minutes the card runs after you put the stock in, the sliver delivered will be light and should be put in waste.

Once the card is running and making good work, oil it, and continue to watch it and listen out for rubbing, bumping, or screeching sounds until you are certain that it is all right.

Dynamic YARN-BREAK Test Predicts Weaving Performance

- A tester constructed to duplicate the stresses of weaving predicts weaving performance of warp yarns better than standard break test
- An index of break values, based on experience, can be used as a guide to weavability

By ERICH MAIER

STATIC YARN-BREAK TESTS do not duplicate the dynamic conditions in weaving. To predict more accurately the weaving performance of yarn, we developed a break tester that reproduces the stresses of weaving; the yarn is advanced constantly and the stresses of shedding and beating up are reproduced.

To check the instrument, we ran an analysis of weaving breaks. Without exception, the dynamic-break-test results predicted whether the yarn would have a high or low break frequency in weaving. The instrument has been used on woolen and worsted yarn, and it should also be useful for cotton.

How To Make the Tester

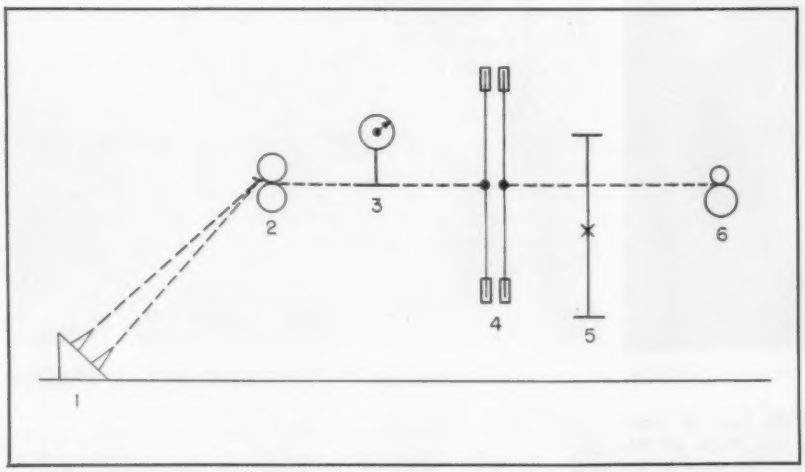
The tester is made of eight elements:

1. A supply rack to hold 40 bobbins in an offset arrangement in two or more rows.
2. A yarn brake to control tension.
3. At least two tensiometers, preferably the kind that simultaneously measures 10 to 20 threads each.
4. A set of shafts, run by a cam, with at least two shafts working with a shedding motion at 160 rpm. The yarns are individually threaded through strands of wire on the shafts.
5. An axle with two arms to stretch the yarns at the time of shaft reciprocation—to duplicate the tension resulting from the beating-up motion. This tension is three times the tension of the shedding motion. The speed of the axle is half that of the shaft mechanism.
6. A roll combination, driver and driven, to move the yarn. Both rollers are covered with felt. The surface speed of the driver roll should have a speed of about 26 to 33 ft. per hr. of test yarn.
7. A 0.25-hp. motor to run the shaft mechanism and the delivery roll. The belt pulleys are arranged for cone-belt operation.
8. A hardwood plate of about 4x2½ ft. for mounting the instrument. The motor is placed beneath the plate.

Forty spools of test yarn are removed from different strata and mounted inside the apparatus and threaded; then the brake is adjusted and the apparatus set in motion. Downtime caused by thread breaks must be deducted.

The operator must promptly indicate which thread breaks, where it breaks (for example: in front of the shafts, in the shaft itself, or between the shaft and winding roll), and at what time it breaks. When the test is finished, the results, expressed in thread breaks per hour, are handed on for further evaluation. If for any reason the results are doubtful, the test must be repeated.

The testing procedure should begin with the first test batch in the spinning mill; and later, testing should be done by lot number, with special attention to the first doff of each spinning batch.



DYNAMIC BREAK TESTER: The main elements in this tester are a supply rack, a tension control, two tensiometers, a set of shafts with a harness arrangement, and an axle that simulates beating up. The stresses of weaving are duplicated.

Worsted Yarn Tested

Testing experience on yarn made of a blend of garnetted worsted yarn and reused and raw wool has been checked by weaving performance on yarn from the same batch. A thread-break analysis was made on warp threads. (If possible, several break analyses, extending over 2 hrs., are desirable.) The results were expressed as the thread-break count per 1,000 filling threads. Only weaving breaks traceable to defects were taken into consideration; breaks caused by improper adjustments, etc. were not counted. High or low break frequency in weaving was predicted in every case.

After carrying out as many weaving checks as possible on typical constructions, a mill can draw up a table based on the results. The figures will give a reliable indication of yarn quality.

For example, in the case of a 10/1

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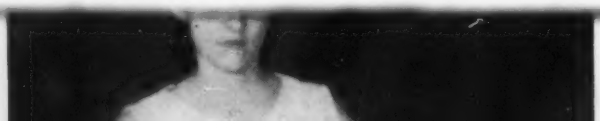


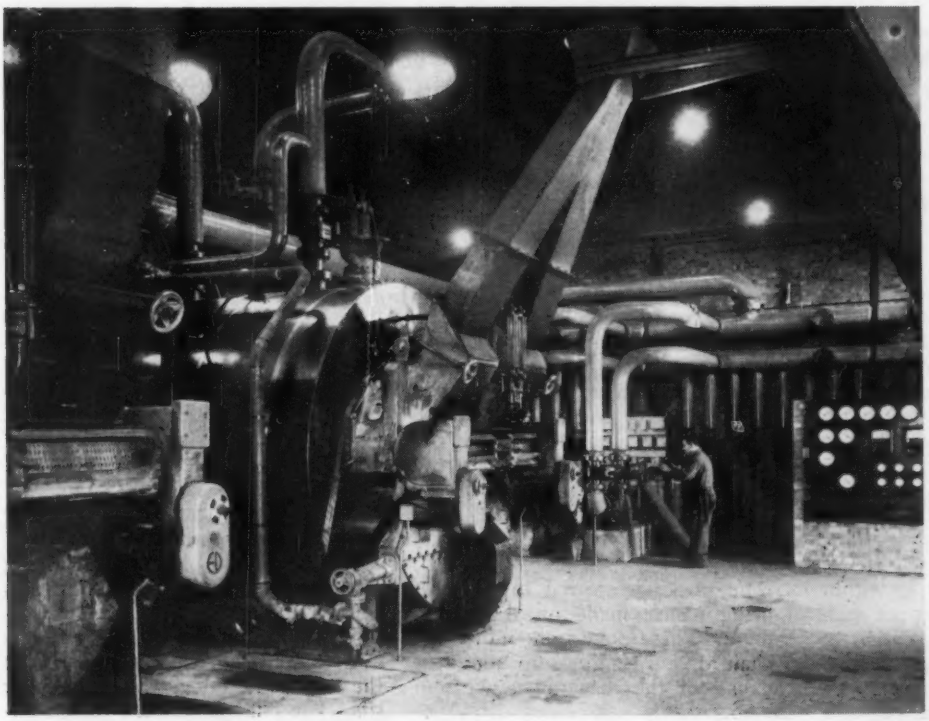
High-Pressure HOT WATER *Provides Free Heat*

• Pasolds Ltd., Langley, Bucks, England, has been saving money on fuel costs with barrel-vault roof constructions, insulated dye vats, and a high-pressure hot-water system. The mill produces children's knitted cotton underwear.

• For other peeks at this up-to-date mill, see TW, May '55, p. 94.

STAINLESS-STEEL VATS are totally enclosed and encased in concrete to insulate them against heat losses. No steam is used. The dyebath is brought to the boil by high-pressure hot-water coils with 120 lbs. per sq. in.

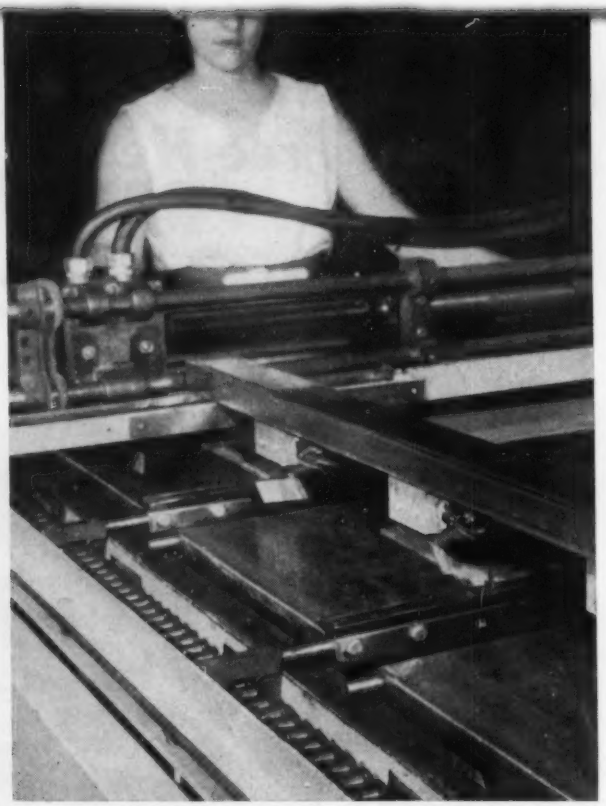
Two vats are combined into one unit with independent motor drives, gears, and control units between them. Hot and cold water and high-pressure pipes are lagged and run on top of the vats. Barrel-vault roof construction was used to help save fuel costs and provide good working conditions. This plant was designed and built by the company's own engineers.



BOILER PLANT contains high-pressure hot-water pumps and diesel generating plant. The cooling water and exhaust gases are used to preheat water for dyeing and to heat the mill in winter. To replace a cooling tower, 22,000 ft. of welded-steel tubing are cast in the floor and the water is pumped through it to provide free heat. An automatically controlled boiler provides additional heat for dyeing and drying.

Twice as much material is processed with a given quantity of coal compared with mills that have conventional heating equipment.

STOCKINGS are laid out on the tray over the machine. Heels of the stocking are placed against the shape on the panel.



ELECTRONIC EYE, moved by the air cylinder, positions the pin on the panel level with the welt. The pin then trips a Micro switch.

AUTOMATIC SORTING
Speeds Hosiery Production

A new method solves the old problem of sorting out lengths of women's hosiery. The result is less handling, inventory, and space requirements and faster production with better inspection.

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

VARIATION in lengths of women's hosiery has always been a tough problem; but Finesse Finishing Co., Robesonia, Pa., has tackled the problem successfully with a new method of pairing. Lengths are now separated mechanically, whereas up to now this operation has always been a tedious hand operation.

The machine that does the job is electronically controlled and was developed by Finesse technicians. Lengths can be sorted out to within ¼ in., and up to 28 stockings per minute can be processed. In addition to faster production, less floor space is required and less handling is done.

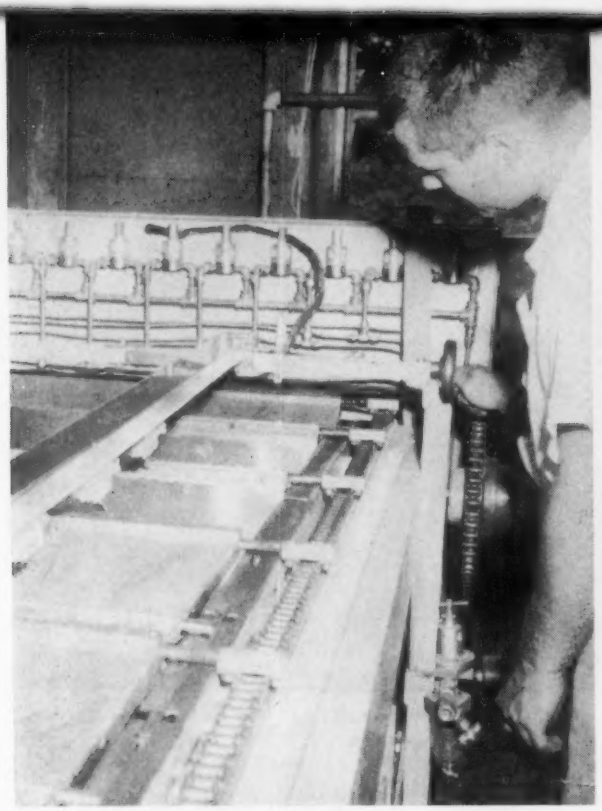
Two machines are installed, and they are positioned close to the boarding room. Stockings from the final-boarding room are folded in ½-doz. lots and laid on trays, and the trays are laid on a table positioned at the receiving end of the pairing machine. One operator tends the machine. She stands between the table and the machine, lifts the stockings from the trays, and places them lengthwise on a rack over the machine.

The stockings are fed to 32 slow-moving panels made of bright aluminum. These panels are moved by a chain driven from a ¾-hp. motor at the end of the machine away from the operator.

The chain is constantly moving; and the machine is set to move from 20 to 28 panels per minute past the operator, according to the style and denier of the stocking. Heavier stockings can move faster than sheer ones.

The heels of the stockings are placed against a raised metal shape screwed to each panel. The welts are laid to the right with the edge of the welt resting against a slide.

As the operator places each stocking on the panel, she inspects both sides of the stocking for flaws. If imperfections are found, the stocking is removed from the panel and placed at the rear of the table, where a mender sits. The fault is rectified almost im-



CONTROL BAR with the switches is positioned at an angle to sort out stockings in 12 different lengths.

SORTED STOCKINGS are removed from the trays under the machine by hand pairers who match up the heels and high splicing.

mediately, and the stocking is returned to the original pile.

The perfect stockings travel with the panels until they pass under a bridge fixed to the machine rails. The bridge contains the brains of the machine—an electronic eye, an air cylinder, and a Micro switch.

As each panel approaches the bridge, the air cylinder moves the electronic eye to the center of the bridge. A catch on the electronic-eye carrier moves a pin that slips along the slide on the panel.

Electronic Eye Positions Pin

When the electronic eye meets the edge of the welt on the stocking, the light intensity on the bright aluminum panel changes. This change operates the Micro switch, and the air cylinder stops to leave the pin level with the welt edge.

The panels, still moving, meet a series of Micro switches on a diagonally positioned bar adjusted to the required lengths of the stockings. Adjustments are made from two handwheels at either end of the bar.

The bar rests on a numbered scale, and experience soon told which numbers the bar should rest on for certain styles and sizes. Most work done at Finesse is held to 2-in. tolerance, but any degree of tolerance up to 5 ins. can easily be obtained by changing the angle of the bar.

There are 14 Micro switches arranged at intervals on the bar, and each switch sorts out a different length of stocking. With a 2-in. tolerance, stockings are sorted out to about ¼-in. lengths.

The first switch is adjusted to take out the stockings that are too short for the tolerance allowed, and the last switch removes stockings that are too long.

The switches are controlled by the pin on the panel. The first and last switches have a wide plate that is moved by the pin as it passes. The remaining switches have narrower plates about ¼ in. wide. All pins touch a plate as they travel the length of the machine.

Contact made at the switch by the pin operates an air cylinder opposite the panel. The air cylinder pushes a lever to open a door on each rail that supports the panels.

The trailing end of the panel falls into a slot revealed by the open door. The end support of the panel falls into the slot and down an inclined rail to allow the stocking to slide from the panel to a tray under the machine.

The slots in the rail are closed, ready for the next selection; and the panels move on to the end of the machine, where the trailing ends are returned to their original position. As the panels move under the machine for the next traverse, the pins are cammed back to their original position.

Hand Pairers Empty Trays

There are 14 trays under the machine where the sorted stockings are received. Hand pairers work alongside the machine and help themselves to the stockings in the tray.

Stockings in the first and last trays are ignored until the end of the order is reached. These categories are then placed in irregulars or in special short or long sizes. The hand pairer usually takes the stockings from the fullest tray. Odd stockings are placed in the next tray.

Hand pairers match up the heels and high splicing and inspect the stocking again on both sides. Mends that are discovered in this operation are returned to the mender at the end of the machine to go back through the process again.

An air compressor in the basement supplies air for the cylinders.

Plans are being made at Finesse to incorporate the machines in a straight-line flow system. A conveyor will bring boarded stockings to the machine from the boarding room, and the goods will travel in a straight line to the final boxing operation.

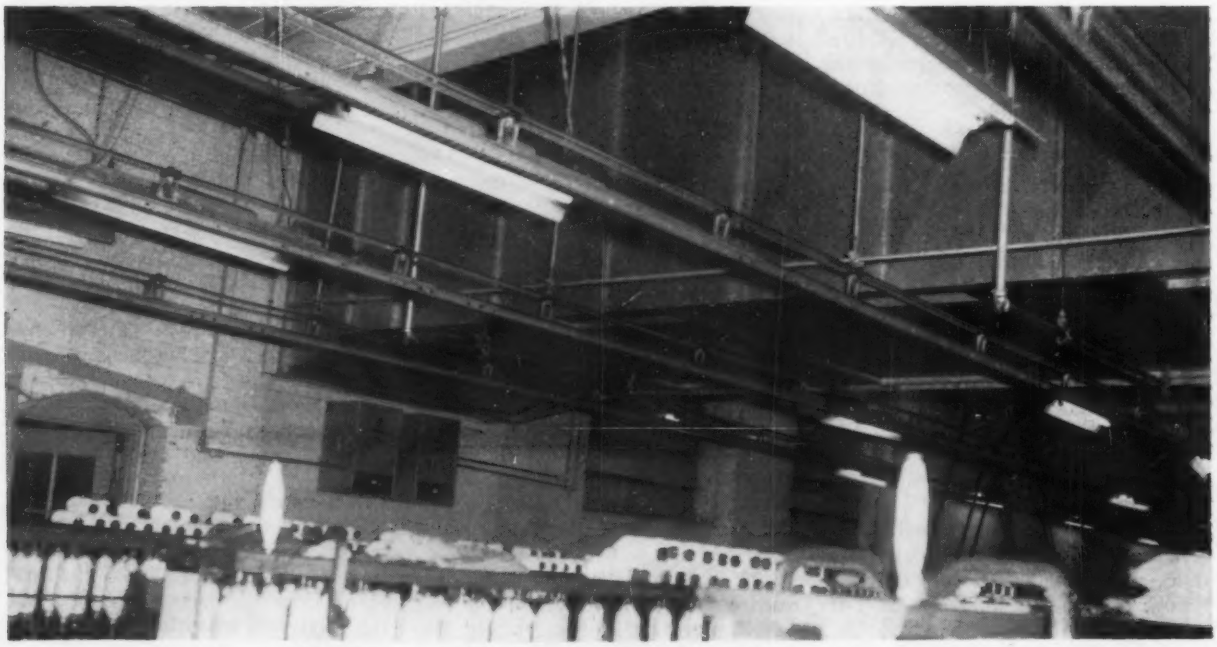
AIR INTAKE at Dunn is through a tower located on the roof near the boiler room.

How Dunn and Clara Stopped SMOKY YARN

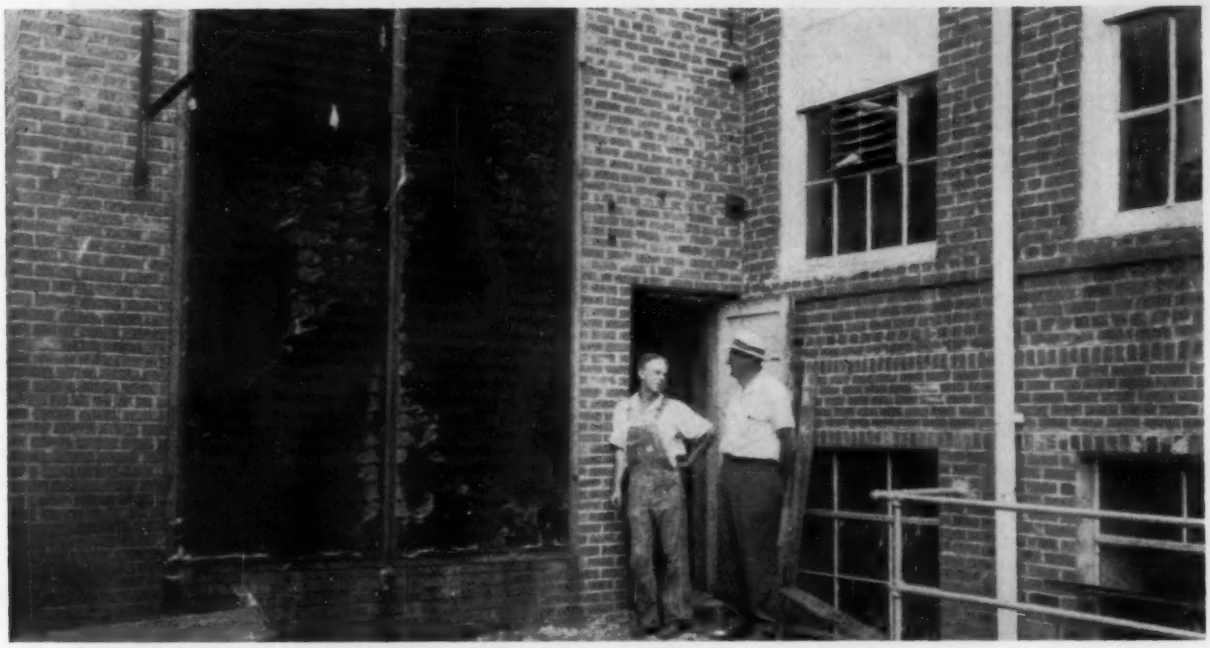
Plagued with soot and smoke in the spinning room, two plants of Botany Mills, Inc., Gastonia, N. C., installed electrostatic air cleaners. Results—

- **Yarn quality improved**
- **Cleaning reduced**
- **Maintenance costs lowered**

By WILLIAM G. ASHMORE, Associate Editor, TEXTILE WORLD



AN OVERHEAD DUCT distributes the clean air throughout the spinning room.



OUTSIDE SCREENS over the louvers at Clara stop much air-borne lint and trash.

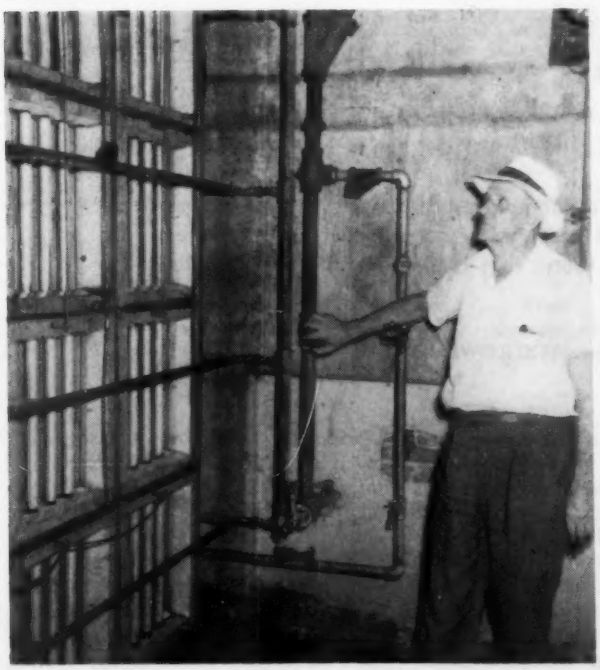
IMPROVED yarn quality, fewer seconds, decreased labor costs, and reduced machinery maintenance have resulted from the installation of electrostatic air precipitators in the Clara and Dunn plants of Botany Mills, Inc., Gastonia, N. C.

For years, soot- and smoke-laden air plagued the spinning, winding, and twisting departments of the two plants. These mills are located in a highly industrialized area where plants burn soft coal to produce steam for heating and processing. Ironically, both Dunn's and Clara's own boiler rooms are located only a few yards from the air intakes to their spinning rooms.

The dirty air, especially in winter, would enter the mill and deposit its load of carbon and tar in the work and on the machinery, floor, and walls. To make matters worse, the whirling spindles and fast-moving yarn would pick up from the air microscopic particles that might otherwise have remained harmlessly suspended.

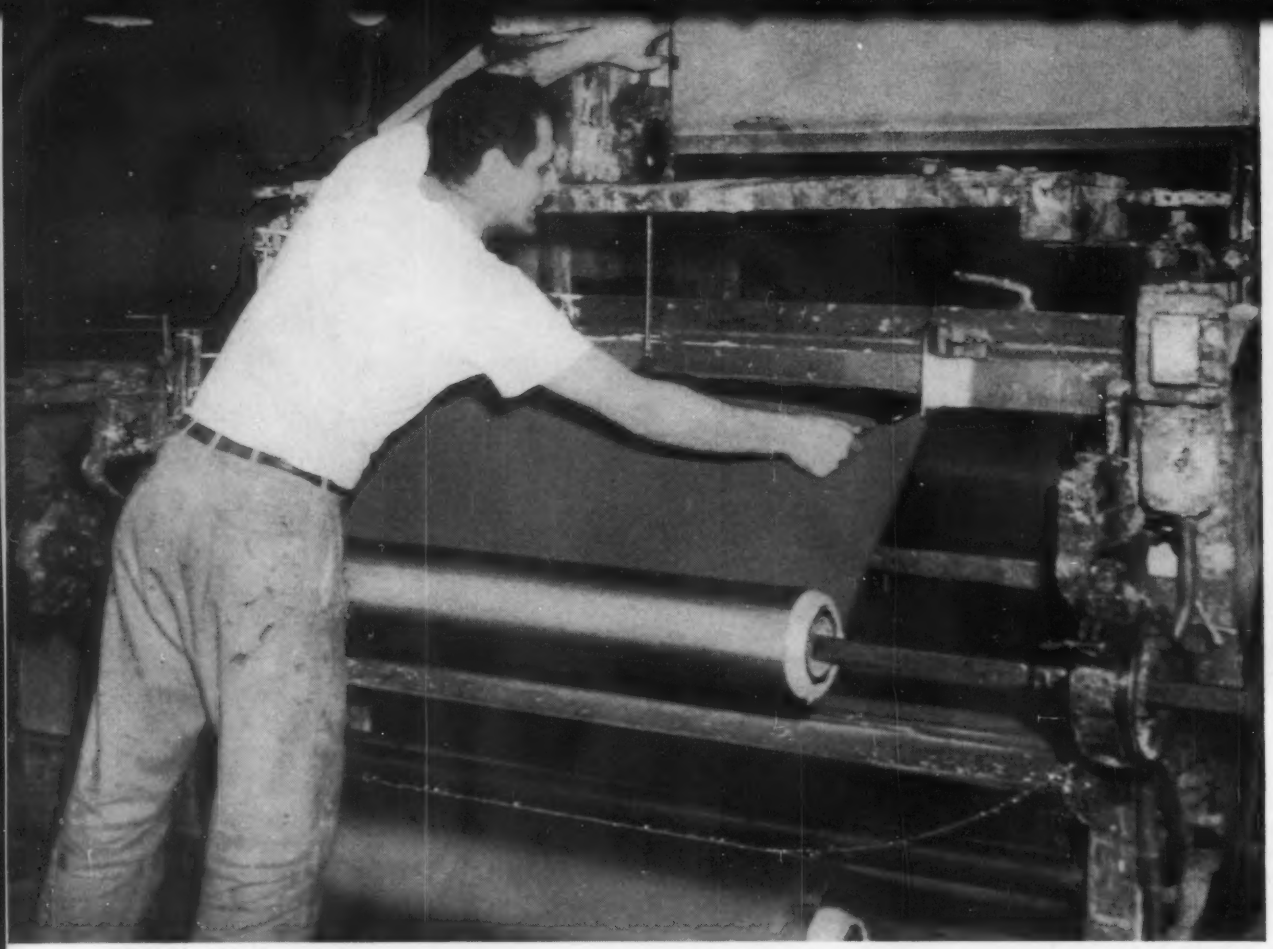
No matter how carefully the yarn was spun, the dirty air in the spinning room would lower the quality of the end product and cause excessive cleaning and maintenance problems.

CONTINUED ON PAGE 194



THE HIGH-VOLTAGE ionizing cells are washed twice a week with steam and water.

THE CELLS are designed so that one man can easily remove them for cleaning or repair.



COATING the back of the fabric with a viscous Neoprene solution is the basic operation in the Aldair process. A doctor blade regulates the amount of rubber applied on each run. Several applications are usually necessary.

How Aldan Makes COATED FABRICS That Breathe

Aldan Rubber Co., Philadelphia, Pa., uses a patented process to coat a wide range of fabrics with a microporous coating that keeps water out while permitting water vapor to escape. Result is a wet-weather fabric that is efficient and comfortable.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

A WATERPROOFING PROCESS originally developed for Navy pilots' survival suits is being used by Aldan Rubber Co., Philadelphia, Pa., to coat fabrics going into civilian rainwear.

You can't see any difference between the new coatings and impermeable types, but the water-vapor transmission of fabrics coated with the new compound is 75% of that of the uncoated fabric. The trick is in the special formula that produces many thousands of tiny pores per square inch of coating. The formulation was patented by Goodyear Tire & Rubber Co., and Aldan Rubber Co. is a licensee. It markets its product under the trade name Aldair.

Aldan has applied the new coating to a variety of fibers and fabrics with good results. The most popular goods include 80-square cotton, 1.6-oz. nylon twills, and 5½ to 6 momme silk fabrics. End uses are numerous, ranging from snow suits and Navy survival suits to yachtsmen's foul-weather garments and women's sheer, expensive rainwear.

Aldan Rubber starts the goods off with a thorough inspection to make sure that quality is up to standard, checking for imperfections that might have an adverse effect on the coating process. The inspector makes up rolls

CONTINUED ON PAGE 196

How To Determine WORKLOADS for WEAVERS

● The system used by Chase Bag Co., St. Louis, Mo., to determine weaver workloads results in accurate job assignments. The system, called modular times, gives workloads quickly even when conditions, equipment, and fabrics woven vary.

By D. H. DENHOLM, Chief Industrial Engineer, Chase Bag Co.

At Chase Bag Co. mills, we use a unit of measurement called modular times to determine weaver workloads. Modular times consists of small increments of time representing a proportionate part of a total. The addition of modular times gives the total time needed to do a job.

With this system, we quickly and accurately determine equitable workloads in our weave rooms even when conditions, equipment, and fabrics woven vary. The workloads are precalculated to assure:

1. Fair workload assignments
2. Proportionate pay for greater work done
3. That the weaver can handle the workload even under varying conditions
4. The best weave-room layout consistent with adequate workloads
5. That loom workloads are equitable with jobs in other departments of the mill

Modular times were collected and tabulated in terms of weavers' time consumption for each assigned loom. For example, we know that a weaver's time is spent doing three jobs:

1. Tending looms. This job consists of repairing warp and filling breaks and restarting the looms.
2. Filling batteries. Our weavers prefer to fill their own batteries; therefore, there are no batteryhands.
3. Miscellaneous duties. These duties vary in each of our four weave rooms. We have to watch these differences carefully when we change the workload.

1. Tending Looms

Table 1 lists the time each loom demands from a weaver. This table is for looms weaving citrus bag cloth made from twisted paper. Similar tables are made for each of our fabrics operating at different efficiencies. The second column of Table 1 represents the time required for a weaver to tend a single loom and applies to loom stoppage only. Since all our looms are handled in multiple groups, this base figure was determined by direct experimentations.

The third column is an allowance recognizing that weavers' walking time increases as greater loom assignments call for more distance to be covered. This column was developed from time-studies.

The fourth column represents the total time demand on the weaver from loom stoppage. Ten looms, for example, demand 45% of the weaver's available time. Machine interference does not contribute to the weaver's time utilization.

TABLE 1

Number of looms assigned weaver	Inherent downtime when tended alone	Add for increased walking time	Time demanded per loom	Total time demand for assignment
5	3.5%	0.5%	4.0%	20.0%
6	3.5%	0.6%	4.1%	24.6%
7	3.5%	0.7%	4.2%	29.4%
8	3.5%	0.8%	4.3%	34.4%
9	3.5%	0.9%	4.4%	39.6%
10	3.5%	1.0%	4.5%	45.0%
11	3.5%	1.1%	4.6%	50.6%
12	3.5%	1.2%	4.7%	56.4%
15	3.5%	1.5%	5.0%	75.0%
18	3.5%	1.8%	5.3%	95.4%
20	3.5%	2.0%	5.5%	.....
22	3.5%	2.2%	5.7%	.....
24	3.5%	2.4%	5.9%	.....

2. Filling Batteries

The time needed to fill a loom battery depends on the number of yards of yarn on each bobbin, the speed of the loom, the number of bobbins the battery holds, and the width of the cloth.

We have two kinds of filling winders in our mills, but the winders are the same make in any one plant. The only significance in the type of winder is in the number of yards of yarn placed on a loom bobbin. Our batteries all have spaces for 18 bobbins. Therefore, Table 2 is calculated for loom bobbins containing 500 yds. of filling yarn. The table is figured on the basis of time required to fill an 18-space battery with 500-yd. filling bobbins, which is 1.28 mins. Conse-

TABLE 2

Cloth width	Picks per minute		
	132	148	156
	Percent of a weaver's workload		
32 ins.	1.64	1.84	1.93
36 ins.	1.84	2.06	2.17
40 ins.	2.06	2.29	2.42
48 ins.	2.46	2.74	2.80

quently, the formula can be expressed as:

$$\frac{128(S \times W)}{325{,}000 + 1.28(S \times W)}$$

where:

S = the speed of the loom in picks per minute
W = width of the cloth in inches

Derivation:

A. Bobbin lasts in minutes =

$$\frac{\text{yards in bobbin} \times 3 \text{ ft. per yd}}{\text{ppm.} \times \frac{\text{width in inches}}{12 \text{ ins. per ft.}}}$$

B. Battery lasts $A \times 18$ spaces

C. Percent time occupied =

$$\frac{1.28}{B + 1.28} \times 100$$

Here's an example of how we tabulate modular times for filling batteries from this table:

Our looms on citrus bagging run at 148 ppm. The table indicates that the bobbins contain 500 yds. of yarn. The cloth width is 36 ins. From the table, we get a time demand of 10 looms times 2.06% equals the total time demand of the weaver of 20.6%.

3. Various Weaver Duties

The various duties assigned to the weavers are listed as miscellaneous operator duties. This work category causes the greatest variation between our plants and, in some instances, causes variation within a department.

This factor is important to us because we believe fair workloads can be determined only after an exhaustive study is made of these miscellaneous duties.

We have seen sound workload theory fail because of poor communications between the production superintendent and the industrial-engineering department. Industrial engineering fosters job methods; but production supervision nearly always reserves the right to add or subtract many small items, often with the thought "It's not too much to ask."

We found that we could not control or standardize these miscellaneous duties completely; so we studied all of them, determined the time consumed, and expressed this time again in a table as a percent of time consumption per loom.

Table 3 lists a collection of these duties and expresses them as percentages.

For our example, the following items were assigned to the weaver:

Additional weaver duties	Percentage of time required per loom
A. Salvage glue	0.130
C. Oil harnesses	0.120
D. Clean harnesses	0.096
F. Remove bobbin strings from battery	0.138
H. Set aside empty can of bobbins	0.039
I. Position full can of bobbins	0.035
K. Fill out stock cards	0.060
L. Mark board for loomfixer	0.083
M. Stop looms at lunch and shift change	0.002
N. Clip ends	0.350
Total 1.053% × 10 looms =	10.5%

Summary of All Jobs

The contemplated 10-loom assignment utilizes the weaver's time this way:

Table 1–Loom stops 45.0% time consumption

Table 2–Filling batteries 20.6% time consumption

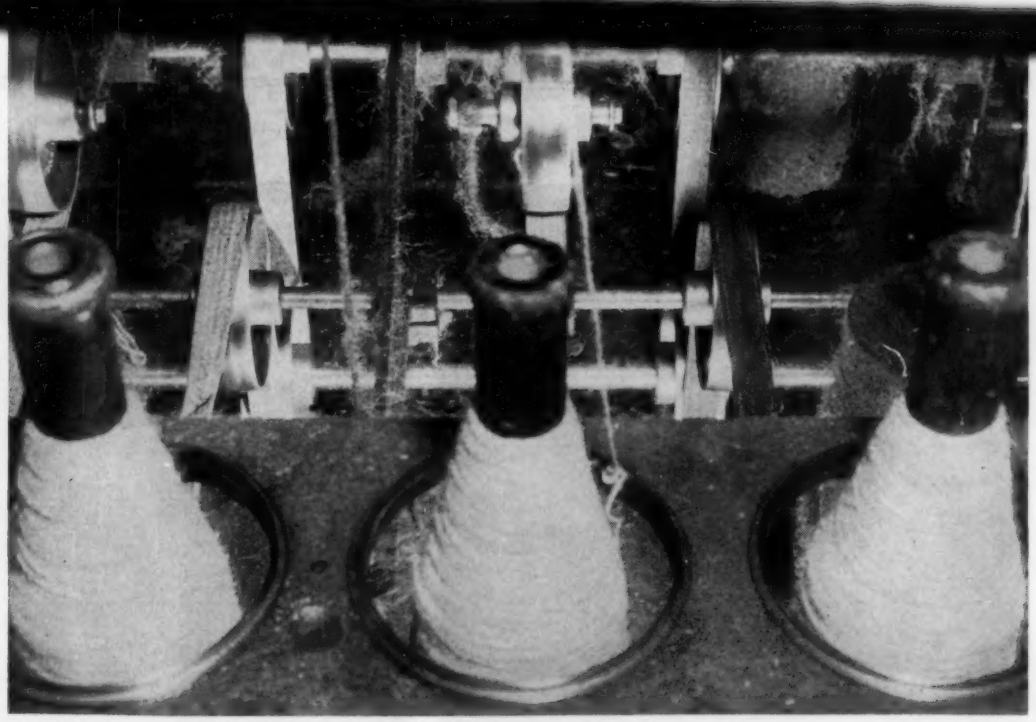
Table 3 – Miscellaneous duties 10.5% time consumption

The total time the weaver is occupied is 76.1%.

This weaver assignment is feasible, and it assures control over material and job-condition variation. A greater workload or a greater assignment of miscellaneous duties is likely.

TABLE 3

		Minutes in loom hours	Percent of weavers' time
A.	Salvage glue—Get pot and glue; fill pans on loom; set aside pot and glue	0.0785	0.130
B.	Banding paste—Get pot and glue; fill pans on loom; set aside pot and glue	0.1780	0.295
C.	Oil harnesses—Get pot, oil, and brush; stop looms and oil harnesses; set aside pot, oil, and brush	0.0725	0.120
D.	Clean harnesses—Stop loom and clean oil off harnesses with a rag	0.0575	0.096
E.	Adjust draw tape—The adjustment is usually controlled by the way it's folded	0.150	0.250
F.	Remove bobbin strings from battery—	0.0829	0.138
G.	Clean paste off draw rollers—	0.1313	0.220
H.	Set aside empty can of bobbins—This job includes only getting the can out of the way	0.0235	0.039
I.	Position full can of bobbins—	0.0208	0.035
J.	Splice band and draw tape		
	—Two bands an hour leno	0.1400	0.234
	—One band an hour regular	0.0750	0.125
	—One draw tape an hour	0.0150	0.025
K.	Fill out stock cards—	0.0364	0.060
L.	Mark board for loomfixer—	0.0500	0.083
M.	Stop looms—(0.0083 per stop) at lunch and shift change	0.0166	0.002
N.	Clip ends—0.01 per clip; 21 per hr. per loom from 18 bobbin changes and three filling breaks	0.210	0.350



PULLEYS AND TAPES move together and keep the tapes on the pulleys even when the twist is reversed. The free-floating action of the pulleys prevents waste lappng on the shaft.

Self-Aligning TAPE PULLEYS *Lessen Spinning-Frame Downtime*

Two years ago Magee Carpet Co. installed self-aligning tape pulleys on its spinning frames. Results—

- **Lower maintenance costs**
- **Less spinning-frame downtime**

By MICHAEL LONDON, Assistant Editor, TEXTILE WORLD

Magee Carpet Co., Bloomsburg, Pa., has decreased spinning-frame downtime and tape-pulley replacement costs by installing self-aligning tape pulleys on its spinning frames.

Frames equipped with the old pulleys were sometimes out of operation as much as 1½ hrs. when a pair of tape pulleys had to be replaced. When twist was reversed on a frame, the tapes changed their positions slightly as they ran over the drive system in the opposite direction.

To offset this tendency, the old pulleys had to be realigned, which made it necessary to stop the frames. The new pulleys, made by Arguto Oilless Bearing Co., eliminate this condition by realigning themselves.

The pulleys have cylindrical bearings that make the pulleys free-floating and a crowned face that makes the belt track in the center of the pulley. Together, these actions cause the pulleys and tapes to track together constantly.

Magee has installed the pulleys on Whitin E and Davis & Furber F spinning frames. Yarns go into axminster, wilton, velvet, and tufted carpets and rugs. Yarn numbers range from 0.5 to 1.5 run. Fibers used are wool and wool-viscose and wool-nylon blends.

Maintenance Costs Less

When the bearings in the pulleys used previously wore out, Magee had to replace the whole pulley. Now, it is necessary only to install new wooden bearings; so there is a saving in maintenance costs.

Pulley cleaning time is cut because the need for loosening the setscrew to get at the waste under the old pulleys has been eliminated.

The self-aligning pulleys are blown down, and the excess waste can easily be picked off. The free-floating action of the pulley eliminates any possibility of waste lapping between the rotating pulley hub and the stationary bracket.

Because they fit square on the pulleys, tapes wear longer.

Magee has also installed the pulleys on Whitin K twisters.

HIGH-BULK YARN is checked for yarn size. Yarns outside the tolerance limit are rejected.

WINDING from one package to another insures a package that will give the best knitting results.

Sample Checks Insure Best *HIGH-BULK SWEATERS*

A standard operating procedure at Robert Bruce makes sure that all its Supreme interlock sweaters are made to the yarn characteristics

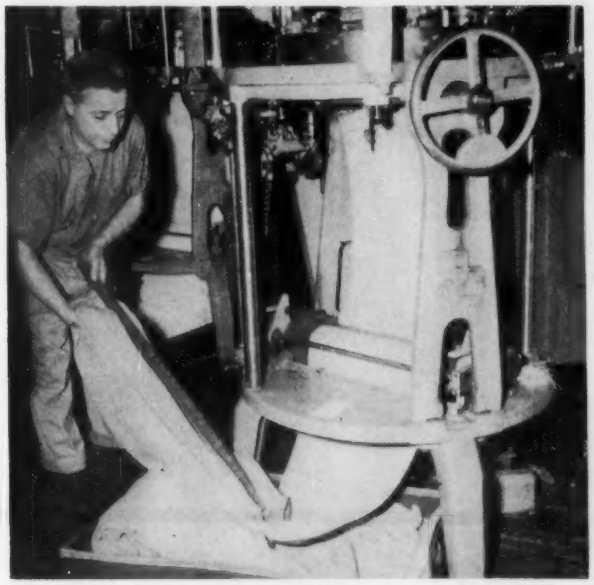
By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

By knitting and completing a batch of high-bulk Orlon interlock sweaters on the receipt of each yarn merge, Robert Bruce, Philadelphia, Pa., is able to keep the high quality of its Supreme sweaters constant. Several cones of yarn are knitted and tested before orders are made from the yarn.

President Harold L. Neuman personally okays each batch before the yarn goes into production. His assistant, Dick Sellman, follows the samples through the mill. The samples are treated identically to production goods, but they are given preference in regard to time.

As the yarn is delivered to the mill, each batch is assigned a lot number so that the first yarn in is used first. About 13 cones are extracted from a new yarn delivery. These cones are rewound on Universal Roto-Coners.

The purpose of rewinding is to create a softer knitting package, to make sure that each package is free from bad knots, and to lubricate the yarn for better knitting. The slub catchers are set as low as possible consistent with good running conditions and re-



SWEATER LENGTHS are checked on the knitting machine several times daily by the knitter.

SAMPLE CHECKS are tested for length, width, and stitches per inch to keep all sweaters standard.

ports from the knitting room.

The exact quantity of yarn is wound from one cone to another cone so that excess knots are avoided. The lightest tension is placed on the yarn during winding to obtain a soft, open package. The high-bulk yarn is softened with paraffin wax.

Yarn Is Tested for Size

Three 120-yd. samples are taken from each merge sample and tested for yarn number. Yarns outside the tolerance of one-half number are rejected.

Ordinance Gauge OTA machines are used to knit the high-bulk interlock sweaters. The sweaters are made seamless on machines ranging from 18- to 24-in. diameters.

Yarns from different spinners are tinted various shades, and these shades are kept separated in the knitting room. Here again, as little tension as possible is placed on the yarn during knitting.

The sample lots of yarn are knitted into sweater lengths. Each lot makes from ½ to 1 doz. sweaters.

All production lots are tested each morning by the knitting-room supervisor. He checks to see that the number of stitches per inch are correct and that the lengths and widths are on standard. The number of stitches per inch depend on the difference from standard indicated by the sample lot.

Knitters Check Lengths

Knitters are responsible for lengths of garments. Lengths of the bodies and cuffs are given on the knitting ticket, and the knitter checks the production from his machines several times daily.

The 10-cut OTA machines are equipped with Wesco press-off detectors fitted at four points under the dial. These detectors have been found useful for stopping the machine when the fabric builds up in the tension rollers. Red lights appear on the machine when the detectors stop it, and the machine cannot be restarted until the fault has been corrected.

The fabric falls in fiber-board trays placed at an angle under the machine. As the goods are rolled up for shipment to the dyer, they are examined by the knitter.

The test lots are usually dyed in a color that is difficult to control. When the rolls of fabric return from the dyer, they are separated into sweater lengths by pulling the cotton draw thread.

All pieces are then steamed on frames that are set to the standard width. The steaming operator checks each piece for the correct length. If the pieces are found to be short, they are not stretched but are reported immediately.

Test lots are sent to the sample room after steaming and are checked for length, width, and the number of stitches per inch.

All sweater lengths are checked for faults before cutting. Sweater lengths are laid up in 1-doz. lots and cut with round and straight knives.

All Supreme sweaters are looped around the neck with rib trim made on 10-cut Dubied machines.

Finished Measurements Taken

The test lots are returned to the sample room after the sweaters are completed; and the lengths, widths, and stitches per inch are again checked. If the sample lot does not conform to the standard, another test lot from the same merge is made with recommendations to the knitter.

A standard-operating-procedure form travels with the test lots throughout the manufacturing process. Comments are entered on the form by the yarn inspector, knitters, and sample cutter.

By adopting this procedure and by using standards forms at the vital stages of manufacture, Robert Bruce is allowing for the variations found in high-bulk yarns to insure that every sweater is a top-quality product.

Tips on Running Coarse FILAMENT Yarn

To successfully process 900-den. and other coarse filament yarns—

Wind—at 425 yds. per min.

Warp—at less than 150 yds. per min.

Slash—with about 75% gelatin size

Quill—with long, tapered wind

Finish—to leave about 20% moisture

By D. E. BAYLIS

COARSE continuous-filament yarn is made into fabrics for lawn furniture, upholstery, kitchen coverings, and automobile seat covers. A popular yarn for these goods is 900-den. rayon. Processing difficulties of this yarn have been overcome through trial-and-error methods. Here are some pointers for good results:

If your machinery is adequate, process the yarn from cakes. Purchase the largest possible cake consistent with your yarn-dyeing equipment to take advantage of the lowest-price package from the supplier.

The 900-den. yarn is sold with various numbers of filaments. If the individual filaments are coarser than 9 den., you will have trouble because the yarn tends to be extremely lively. Some of this liveliness can be overcome with a lubricant, but start off with a yarn having filaments finer than 9 den.

Obtain cakes from the supplier wrapped in a snug-fitting knitted cover. This cover helps prevent sloughing in winding. End-break trouble will be almost eliminated. The cover also prevents waste when the cake runs out.

Wind With 3.5% Lubricant

Over 2.5% and less than 5% lubricant should be put on the cakes by the supplier. About 3.5% is a satisfactory amount of lubricant for 900-den. yarn to allow the cakes to wind well.

For good results in dyeing, see that all packages are of about the same density and size. Do not tie knots when ends break but work off the small packages as filling.

To get the best results from winding, make a table about 10 ins. wide and long enough to serve the number of spindles required for the necessary production. Place the table to allow 12 to 13 ins. between the top of the cake and the thread guide when the cake is in position.

Fit fiber-board separators between the spindles so that the yarn balloon will not interfere with the adjacent packages. Place the cake in position on the holder or insert.

Leave the lower portion of the cover on the yarn and the upper portion of the cover tucked in the insert. Center the cake under the thread guide.

900 Den.—Costs, Speeds, and Waste

Process	Labor (cents per lb.)	Material (cents per lb.)	Speed (yds. per min.)	Waste (percentage)
Winding on dyetubes	5.61	....	425	0.35%
Pirn winding	5.78	....	Normal	3.5%
Warping	1.22	....	150	....
Slashing	4.18	....	8	0.5%
Dyeing	2.62	4.58	....	....
Finishing	1.58	13.48	....	....

The most satisfactory holder for coarse yarns is a self-expanding holder that continually exerts pressure on the cake from the inside. The layers of yarn on the cake are always kept taut and in place. The top or cap used with this holder may be of plastic or tin.

Wind at 425 yds. per min. Open the slub catchers as wide as possible, or remove them.

If these techniques are followed and the operator handles the yarn carefully, end breakage is about two per 100 cakes. Total waste should not be over 0.35%. Winding costs will be 5.61¢ per lb.

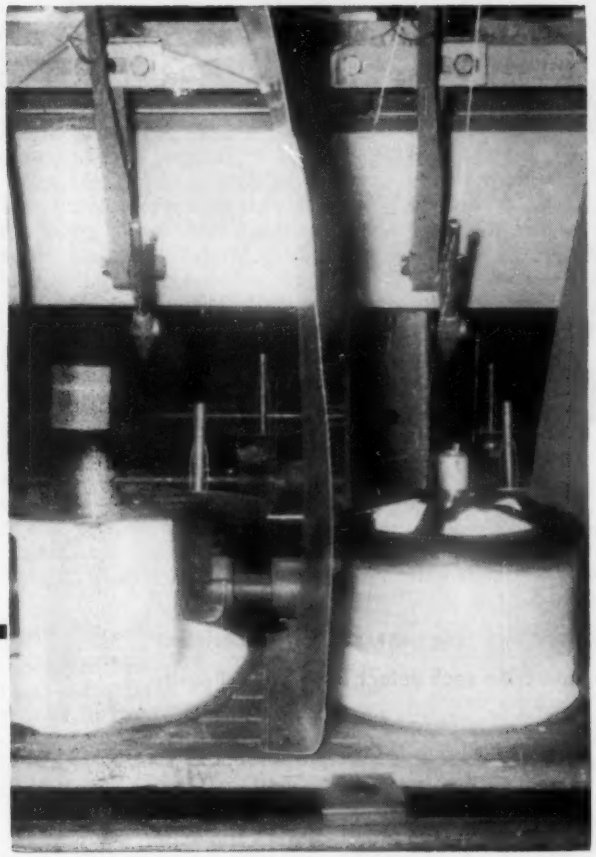
Warp From Dyetube

Warp directly from the dyetube on a warper with a spring holder for the dyetube. Because dyeing softens the packages, they will have a tendency to slough during winding. To avoid sloughing, place the packages solidly against the felt or sheepskin so that the yarn cannot fall over the end of the package.

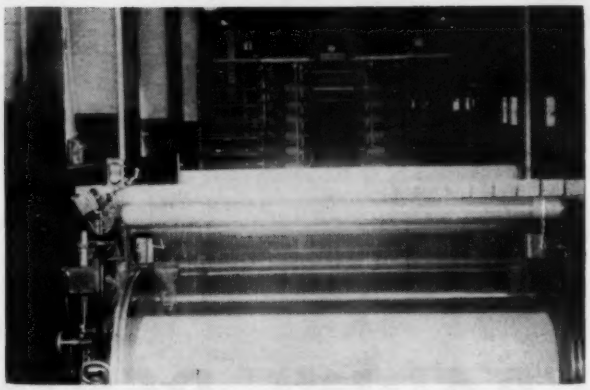
Do not run the warper at speeds in excess of 150 yds. per min. Maintain the creel tension with disks to form a hard warper beam. Low tension in warping, which is necessary for the fine deniers, is not desirable for 900-den. yarns.

Bring the warper beams together in the normal manner used in filament processing at the slasher. Use 0.75% gelatin size to obtain best results in the weave room. Too much size will result in yarn that is too stiff to interlace properly in weaving. Dry 4,400 ends of 900-den. yarn at a slasher

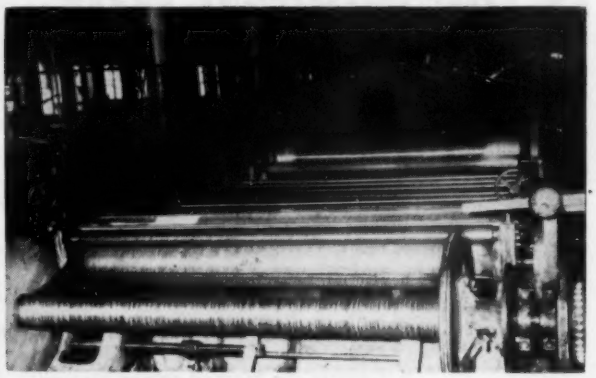
CONTINUED ON PAGE 198



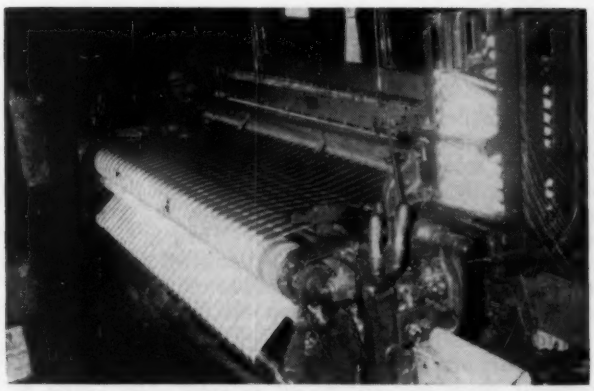
WINDING is best done at 425 yds. per min. A table with fiber-board separators supports the yarn packages.



WARPING is done directly from the dyetubes at less than 150 yds. per min. A hard warper beam is formed.

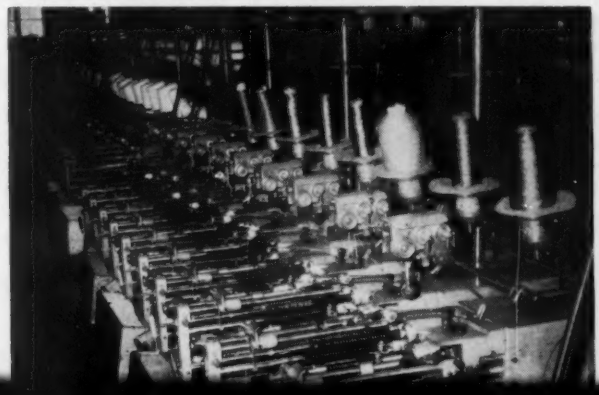


SLASHING is done with 0.75% gelatin size to prevent split ends. Slasher speed is about 8 yds. per min.

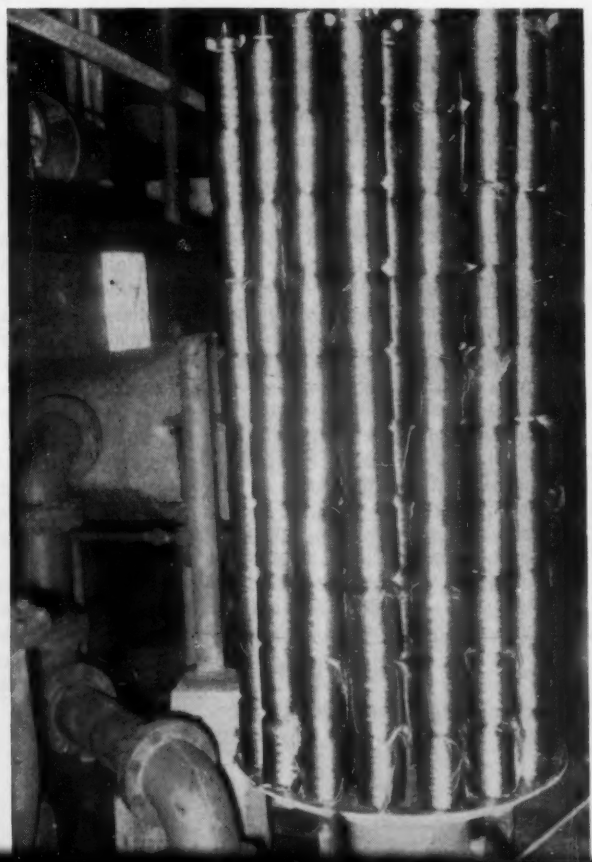


WEAVING requires slightly more power on the pick. Take-up motions and let-offs must be in good condition.

QUILLING is done at normal speeds; but a long, tapered No. 7 wind is used. Three deep grooves control sloughing.



DYEING is done without knitted tubing to cut down on costs and to prevent the protruding ends from falling off.



strings to be graded after the cloth is

occur on the last cut on a loom beam.

Harness Drop—Warp ends of one

GRADING DENIM to Standards Is the Modern Way

When individual inspectors grade cloth by their own judgment, you get inconsistent results. But there's a newer and better way: describe each defect in writing. Results are—

- **Accurate grading on gray and finished cloth**
- **Consistent grading from all inspectors**
- **Defects are blamed on the maker**

By GARLAND SANDERS

CLOTH grading in our denim weaving mill has become very accurate since we installed a new grading system based on a written manual. The manual defines every major cloth defect. Department heads are charged with the actual seconds made as a result of defective work in their departments.

We weave approximately 15 styles of denim on Draper X-2 and E-model looms. The fabrics are woven on three and four harnesses and vary in weight from 6 to 11 oz.

As each cut of cloth is inspected, inspectors and graders use a standard scoring sheet that lists each defect. Cuts of cloth are graded firsts or seconds by points.

Since variations occur in inspecting, we inspect about 5% of all cloth a second time. This constant spot-checking shows up the variations and keeps the grading standard high.

Seconds Are Charged Daily

The data from each scoring sheet are compiled on an over-all daily inspection report that shows each department head the amount of seconds caused by bad work in his department. The figures from these reports are totaled every week and put on a graph.

The cloth-inspecting and -grading system follows conventional practices up to this point. But to make the system effective, an agreement has to be reached by department heads to describe each defect. For this reason, we've made a list of the most-common defects and have accepted them as standard terms. The list of defects is an excellent manual to guide present inspectors and to train new inspectors. A sample swatch of cloth showing the defect is included with each defect in the manual.

The manufacturing machinery at each process determines the classification of each defect and the department responsible for it. Our processing units are probably the most-common ones for denim.

Manufacturing Practices

For filling yarn, the stock is dyed and blended, run through one-process drawing and roving, and creeled single in spinning. Then it's wound on cheeses on Barber-Colman spoolers and rewound on quillers.

The warp yarn is also run on Barber-Colman spoolers. It is creeled to a chain of approximately 500 ends cross-wound on a tube. The chains are dyed on a continous range. Every chain is divided and beamed on section beams.

Four to six section beams, depending on the number of ends in the warp, are run in the slasher creel. After the cloth is woven, it's doffed in 120-yd. cuts.

The cuts of cloth are run through a brushing machine in the cloth room and are stitched into 1,000 to 1,500-yd. rolls. The rolls are put on inspecting tables and are burled and graded in one operation. Defects not removed in burling are marked with

strings to be graded after the cloth is finished.

Graded cloth is run through a tenter-dryer and double-unit Sanforized range. Then the cloth is folded and cut into 60-yd. lengths.

Final inspection is done by graders. They watch for finishing defects, count the layers, attach labels, and sew the cuts. Cuts of doubtful grading are held for supervisors.

Defects are charged to six production departments: (1) yarn preparation, (2) dyeing, (3) slashing, (4) weaving, (5) finishing, and (6) Sanforized.

The following list of defects is grouped by departments. It is fairly complete for our present manufacturing conditions. No attempt has been made to give a complete list of the possible causes of defects; but instead, we name the defects and describe them.

Yarn Defects

Uneven Filling—Small shady places often occurring in a checkerboard pattern or in bars, which usually run in one-bobbin lengths. They're made by untrue rollers or rollers with too little weight.

Shady Filling—Light and dark shades across the width of the cloth for the full length of one bobbin. The defect is caused by uneven blending of cotton in opening and occasionally by trouble in dyeing.

Slubby Filling—Thick places in the filling containing cotton waste or extra fibers usually distributed evenly over the face of the cloth throughout the length of a bobbin. Poor carding causes the trouble.

Slubby Warp—Single thick places in warp ends. The diameter runs up to five times the normal diameter. The trouble comes from waste spun into the yarn in drawing, roving, or spinning.

Coarse End—One warp end of heavier yarn number running for various lengths. If it's only a few inches long, the trouble is probably in spinning. Longer lengths result from creeling or beaming faults.

Dyeing Defects

Streaky Warp—Lighter or darker ends across the cloth caused by one or more section beams of a different shade.

Slashing Defects

Cut Marks—Repeating or spread-out cut marks caused by the wrong viscosity of dye.

Starch Marks—Light-colored bars forming stiff or crusty spots of varying size across the cloth. They usually occur on the last cut on a loom beam. The first yarn wound on the loom beam stays too long in the size box.

Loose Ends—Warp ends curling in loops above the cloth surface. They occur regularly in the first cut of a new warp in the loom until uniform tension is obtained. They're also caused by tangled warps and by ends breaking behind the loom drop wires.

Soft Warp—Knots of lint woven into the cloth. An improperly sized warp is chafed during weaving.

Weaving Defects

Kinky Filling—Short loop of filling yarn. Caused by the sudden release of tension on the filling before the shed changes at the beat-up or by overtwisted filling.

Sloughed Filling—Long loop of filling. Caused by the same conditions that cause kinky filling; also by broken picks and wrong shuttle lining.

Jerk-Backs—Filling of any length pulled into the cloth or hanging from a selvage. They're caused by filling catching on the side fork or front box plate or by improper cutting at bobbin changes.

Mispick—A portion of a pick of filling is left out over part or the whole width of the cloth. It's caused by a weaver inserting the filling with the wrong warp shed open or by a loom that fails to stop at a broken pick.

Broken Pick—Filling broken during the flight of the shuttle and extending over only part of the cloth width; a mispick is left in the cloth. Various troubles in the shuttle and shuttle boxes cause the defect.

Thin Bar—Warp ends with no filling or too small fiilling for two or more picks. It's usually caused when a loom fails to stop when filling breaks.

Thick Bar—Too large filling for two or more picks. If it occurs frequently, the cloth is not taking up regularly. A single place results when a weaver sets the pick gear wrong when he repairs a thin bar or broken pick.

Let-Off Mark—Alternating thin and thick bars at regular or irregular intervals. The let-off is out of fix.

Mixed Filling—Filling of wrong color or yarn number woven into the cloth. If the mixed filling is for a full bobbin, the filling was probably mixed in the weave room. If the mixed filling is for only a fraction of a bobbin, it was probably mixed in quilling.

Double End—Two ends are drawn through the same heddle to form an extra end.

End Out—A warp end is missing in the cloth. It's usually caused when the stop motion won't stop.

Wrong Draw—Usually two warp ends are in swapped position in the heddles.

Harness Drop—Warp ends of one harness floating on the face or back of the cloth for full or part width of the cloth. Caused by a broken or stretched harness strap.

Harness Trouble—Little filling marks along one selvage where the shuttle overshoots the ends of the upper shed. Harness or harnessess are not set level.

Harness Mark—Continuous dark line of roughened warp yarn. Heddles are stuck at a hook or too tight in the harness frame.

Shuttle Skipping—Filling lies loose on top of the cloth with a mispick under the loose filling. The shuttle is jumping out of the shed.

Smash—A large number of ends broken and a wide thin bar the length of the shuttle. Protector motion is out of fix.

Reed Mark—Continuous dark and light lines in the warp. Caused by small or large warp ends or bent reed dents. If a thin mark over one-end wide shows, an end in the reed is usually drawn wrong.

Temple Mark—Continuous pressed marks, about 2 to 4 ins. from a selvage; temple cover is too low. Dark line the width of the temple; temple-roll points are too sharp or bent.

Draw-Backs—Dark or light line on the face of the cloth at one or more broken warp ends; caused by tangled warp ends, wild ends, or slubs.

Ridgy Weave—Light marks in the cloth widthwise every third or fourth pick, depending on the number of harnesses. Warp is too slack or the last harness is too high or too low.

Oil—Oil dropped on the cloth in spots. An oily streak running with the warp indicates oil dropped on the warp in the loom. Oil bars or streaks across the width of the cloth indicate oily bobbins of yarn.

Rust—Rusty spots in the cloth come from water dripping on looms during the week-end shutdown.

Dirty Filling Yarn—Caused by wrong handling, dropping on dirty floor, etc.

Finishing Defects

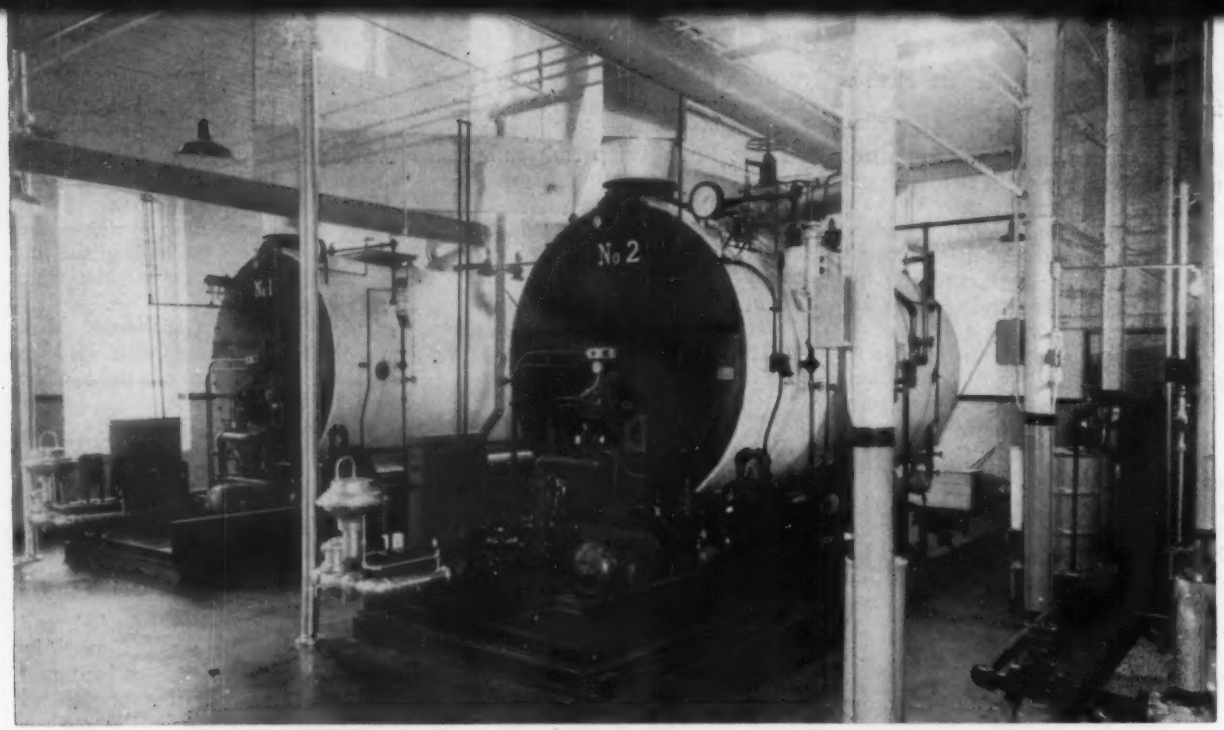
Can Scum—Dark crust of finish-and-lint accumulation on the back of the cloth. Caused by dirty cans or machines stopped too long.

Pleats—Caused by several things such as leading-in new cloth, running cloth too slack, etc.

Bad Hand—Stiff, boardy hand or too soft hand. Wrong finishing formula for the style of cloth.

Sanforized Defects—Distortion of filling; caused by shoes, spray, etc.

Wrinkles and Rough Finish—Worn blanket; new blanket not set; overshrunk fabric.



TWO NEW BOILERS replace four old ones. They're quickly changed from fuel oil to natural gas. Only one boiler is used in the summer, and both supply the winter steam easily.

NEW BOILERS at Newberry Mills Save $23,445 the First Year

• Newberry Mills got more than it bargained for when it threw out four obsolete boilers and put in two modern units. The mill expected to save $17,000 per year but actually saved $23,445 the first year.

By G. B. SESSIONS, Superintendent, Newberry Mills

EIGHTEEN MONTHS AGO, we installed two new Cleaver-Brooks boilers at Newberry Mills, Newberry, S. C., that are paying for themselves at a fast clip. At the present rate of savings, the boilers will be paid for in less than two years of operation. Fuel costs have been cut more than 50%.

The two 250-hp. self-contained boilers cost $38,400. The saving on fuel for the first year of operation is $14,045.41; labor saving is $9,399.59. The total saving for the year is $23,445. Natural gas, now available, is expected to further cut the fuel costs by one-third.

Besides fuel and labor savings, other advantages are realized: Absence of smoke, soot, ashes, and coal dust results in cleaner surroundings and reduced over-all maintenance costs.

Newberry Mills has 52,560 spindles and 1,250 looms. Print cloths are woven from 30s warp and 40s filling yarn. The mill operates 120 hrs. each week and manufactures 600,000 yds. of print cloth each week.

Here's the Old Equipment

The original steam plant consisted of four 300-hp. water-tube boilers installed in 1909; and after 40 years of operation, these coal-fired units were becoming fuel-hogs. Their efficiency was poor, and operation was a continuous problem.

Normally, one boiler was fired in the summer and two boilers were fired in the winter. The steam load in the summer was four slashers and an occasional fifth slasher.

The winter boiler load consisted of the slashers plus heating the mill. Steam pressure was maintained all the time for a stand-by fire-pump supply. The total peak load was approximately 478 boiler horsepower.

Summer steam costs based on seven months of operation totaled $14,800. Winter steam costs for a five-month period came to $17,850. The total yearly cost was $32,650. The yearly steam costs broken down were:

Basis of summer steam costs: seven months of operation; present cost of coal $8.40 per ton; average total consumption of 40 tons of coal each week; labor 120 hrs. at $1.06 an hour, and 16 hrs. at $1.59 an hour.

Weekly costs:

Coal 40 (tons) x $8.40	=	$336
Labor 120 x $1.06	=	$127
16 x $1.59	=	$25
Total direct costs each week	=	$488
Total costs for seven months	=	$14,800

Basis of winter steam costs: five months of operation; average coal consumption 80 tons each week; labor and fuel costs same rate as summer operation.

Weekly costs:

Coal 80 (tons) x $8.40	=	$672
Labor 120 x $1.06	=	$127
16 x $1.59	=	$25
Total direct costs each week	=	$824
Total costs for five months = $824 x 4.33 x 5	=	$17,850
Total direct steam costs per year	=	$32,650

Engineers Showed the Way

When we studied these figures, we decided that something had to be done to lower the costs of our steam-plant operation. We called in an engineering firm to survey our steam plant and mill steam requirements.

The engineers prepared an analysis covering the entire heating and power load. The heating load consisted of 11,121,000 Btu. hr., as shown in the accompanying table, and required 332 boiler horsepower. Expected operating costs based on the steam-plant analysis for newly installed self-contained fully automatic boilers were:

Summer steam costs: four slashers operating 136 hrs. per week with an average fuel consumption of 5 gals. of fuel oil per slasher per hour; 32 hrs. per week of stand-by steam for fire pumps at 1 gal. of oil per hour; cost of No. 6 oil delivered at Newberry 7.6¢ per gal.

Weekly costs

4 slashers x 5 (gals. per hr.) x 136 x $0.076	=	$207
32 (hrs.) x $0.076	=	$2
Total direct costs each week	=	$209
Total costs for seven months $209 x 4.33 x 7	=	$6,340

Big Savings Are Indicated

Winter steam costs: the old water-tube boilers operating at 20 to 25% of nominal rating on the average both summer and winter were the basis of the analysis; one of the proposed boilers would operate in summer, and both would operate in winter; a load curve was plotted from 344-hp., and efficiency was found to be about 27% with underfeed stokers. Therefore, an average winter thermal efficiency of 30% was used; all conditions of fuel costs are the same as for summer operation.

Weekly costs:

5,520 (gals.) x $0.076	=	$420
Total costs for five months $420 x 5 x 4.33	=	$9,120
Expected total fuel costs per year	=	$15,460

Following the steam-plant analysis, the engineers estimated that we could realize substantial savings by installing new self-contained, fire-tube, combination oil- and gas-fired boilers. The estimated figures were:

Costs of present operation with coal-fired boilers	$32,650
Expected costs of operating new package boilers	$15,460
Annual savings indicated	$17,190

Natural gas to be available later would be one-third cheaper than fuel oil, and additional savings would be provided during the summer months, if not all year.

Other savings were also expected, since less labor would be required to fire the steam plant. However, it would be necessary to have fixed responsibility for the proper care and protective maintenance of the steam plant.

The Results Are Good

Therefore, the engineers presented three plans to us for our consideration. We studied the plans carefully and selected plan No. 2, which called for installing two new boilers.

The two boilers installed are Model-LR combination heavy-oil-and-gas-fired units. One of the old coal-fired boilers was held for an emergency stand-by. Since the burners can be changed from oil to gas in a few minutes, we expect an additional fuel savings of $3,000 per year through the intermittent use of natural gas.

The fuel savings have exceeded expectations based on the first analysis. The boilers are performing at a fuel-to-steam efficiency of 82.88% on No. 6 heavy oil. The average efficiency for the first 52 weeks of operation included 129 lbs. of water per pound of oil.

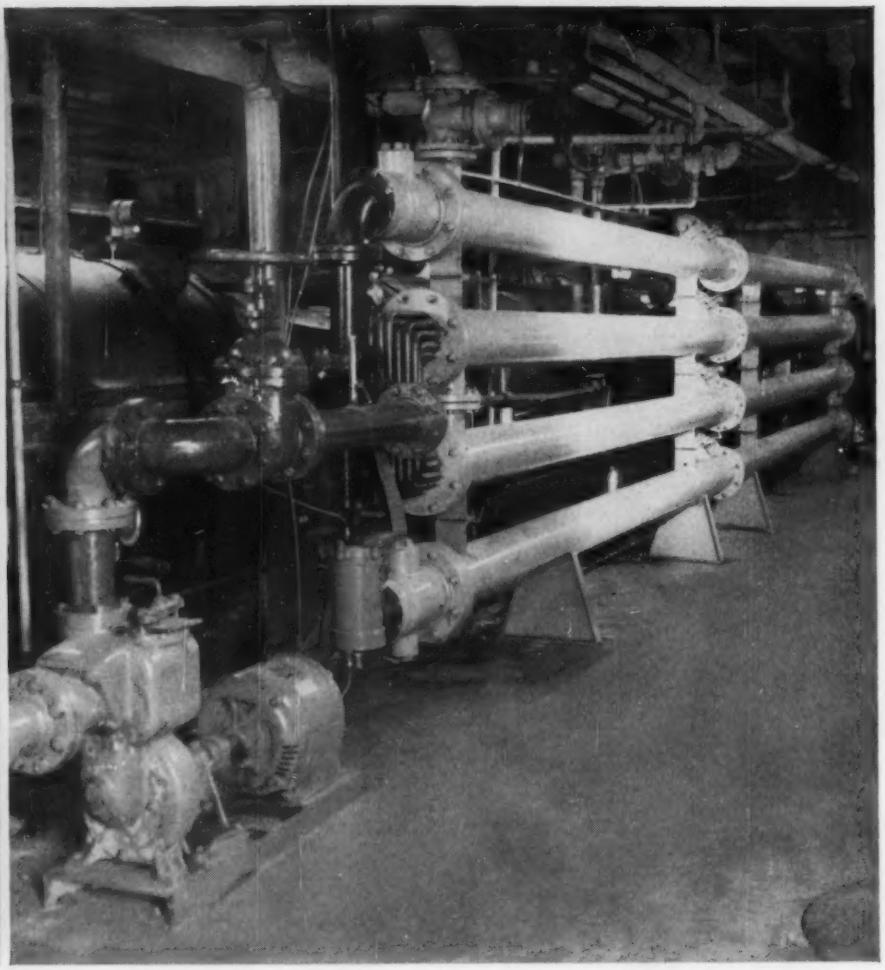
In addition to the combination of lower operating costs, choice of fuel, and efficient operation, we think we have the prettiest boiler room in the South.

Data on Heating Load	Btu. Hr.
Weave-room annex	
Two Model-T x 110 Thermolier unit heaters	296,000
Weave Room No. 1, north and south	
3,840 ft. 1¼-in. pipe coil	
960 ft. 1-in. pipe coil	1,243,000
Cloth storage room	
Two Model-D-44 Thermolier unit heaters	228,000
Cloth room	
Four Model-T x 70 Thermolier unit heaters	364,000
Card Room No. 1, north and south	
4,800 ft. 1½-in. pipe coil	1,300,000
Carpenter shop	
Two Model-D-37 Thermolier unit heaters	161,000
Spinning Room No. 1, north and south	
2,745 ft. 1¼-in. pipe coil	
675 ft. 1-in. pipe coil	892,000
Spooling and warping	
One Model-D-21 Thermolier unit heater	
Five Model-T x 70 Thermolier unit heaters	502,000
Spinning-room ell	
315 ft. 1½-in. pipe coil	85,000
Spinning Room No. 2, north and south	
2,736 ft. 1¼-in. pipe coil	765,000
Card Room No. 2	
2,280 ft. 1¼-in. pipe coil	615,000
Card-room ell	
210 ft. 1¼-in. pipe coil	57,000
Picker room	
1,248 ft. 1¼-in. pipe coil	337,000
Weave Room No. 2, first floor	
2,310 ft. 1¼-in. pipe coil	625,000
Weave Room No. 2, ell, first floor	
348 ft. 1¼-in. pipe coil	94,000
Weave Room No. 1, south basement	
1,800 ft. 1¼-in. pipe coil	480,000
Supply room	
270 ft. 1-in. pipe coil	58,000
Machine shop	
528 ft. 1¼-in. pipe coil	143,000
Weave Room No. 2, ell, basement	
300 ft. 1¼-in. pipe coil	81,000
Weave Room No. 2, basement	
2,310 ft. 1¼-in. pipe coil	625,000
Seven Model-D-44 Thermolier unit heaters to be put in odd places	763,000
Twenty fin heaters 10 ft. long for wash rooms (estimated 10,000 Btus. each)	200,000
Office (estimate)	200,000
Total	10,296,000
Estimated piping loss —8%	825,000
Total heating load	11,121,000

$$\frac{11{,}121{,}000}{970} = \frac{11{,}500 \text{ lbs. steam}}{34.5} = 332 \text{ boiler horsepower}$$

Since demand-load figures are based on 35 lbs. steam in coils and 70° F. air temperature, the total heating load is the total heating demand; no warm-up factor is needed.

what pays off most toward a plant's profits?



ASK any wet processing plant manager whose plant is equipped with a Bready System of Waste Heat Recovery what contributes more to his plant's profits and the chances are good he will point to his Bready System.

Many a plant manager has said, after his Bready System of Waste Heat Recovery was installed, "Why didn't I do this long ago?"

A Bready System of Waste Heat Recovery is *always* a good investment for any wet processing plant. There is that time, however, when a plant is short of boiler capacity — hot water heating capacity — or both — that a Bready System *really pays off*, making the existing boiler equipment big enough with substantially reduced fuel costs. Write, wire or phone for complete details, or a FREE PLANT SURVEY — TODAY!

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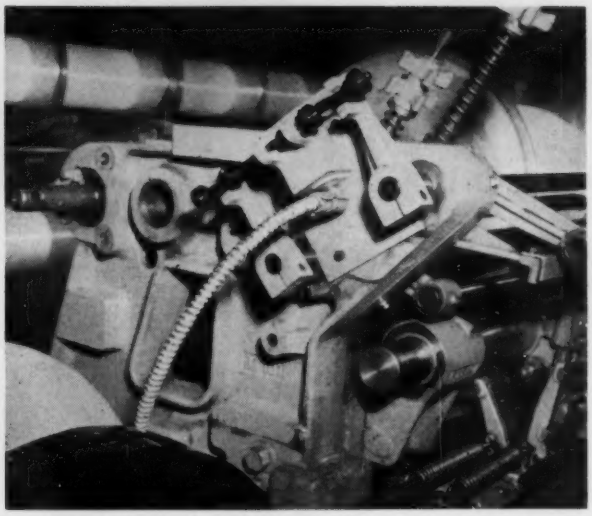
MANUFACTURERS OF BREADY SYSTEMS OF WASTE HEAT RECOVERY

AUTOMATIC LET-OFF units fitted to Reiner tricot machines are adjusted to bring runner lengths to normal while machine is running.



SAFETY DEVICE on the machine guards against too-tight or too-slack tensions. Tension-rail movement determines disk settings.

How To Get Better TRICOT-RUNNER Control

● A new automatic let-off unit is used on Reiner and Kidde-Aveco machines to reduce shade marks and make better tricot fabrics

By **JAMES H. BLORE,** Associate Editor, TEXTILE WORLD

Fairview Mills, Inc., Fountain Inn, S. C., is using a new let-off to reduce shade marks and to give a better-balanced cloth. The automatic let-off device, made by George E. Clentimack Co., is used on Reiner and Kidde-Aveco tricot machines.

The mill has installed two units on the right side of the machines. One unit controls the top beam and the second unit the bottom beam. A single chain is used to drive both units from the main camshaft.

A flexible steel strip is fixed to the right end of the tension. This strip moves a rod to transmit the tension-rod movement to a shield that covers or uncovers teeth on two ratchet wheels. The beam speed is slowed or increased according to the rod's direction of movement.

The original tension devices were removed from the machine to install the new units. This job took about 4 hrs.

Final Adjustment Made With Crank

When a new warp is commenced, the fixer adjusts the runner lengths to a numbered wheel on the unit while the machine is stopped. The machine is then started, and the final adjustment is made by fitting a crank to the shaft that controls the mesh of the friction disks.

When the machine is running at the correct runner length, the zero mark on the shield is opposite a pointer fixed to the unit. The knitting superintendent and fixers check this mark regularly; and if the runner lengths drift from normal, the crank is inserted on the friction-disk shaft to bring the runner length back to normal.

A crank is conveniently hung on each machine on the top let-off unit. Fairview's technicians like the idea of checking the runner lengths while the machine is running because it saves time and it reduces stoppages.

Runner lengths have been checked at the end of each piece and found to be under excellent control.

When a machine has been changed to another style and the original style is required, the runners are adjusted from the numbered wheel to get the identical runner lengths for the original style.

Safety Device Prevents Warp Break-Outs

A safety device is fitted to the left side of the machine to guard against excessive tensions or too-slack tensions.

Forked rods, fixed to the left end of each tension rail, work between two adjustable disks. The rod moves the disk if the tension rail exceeds its normal movement, and the disks move a shaft to stop the machine through a contact switch. The disks on the safety device are adjusted according to the movement of the tension rail.

New! from Super Tufter

Better Tufting Design Control

Super Tufter Model 208
with
NEW ELECTRIC AUTOMATIC PATTERN CONTROL

Model 208 short loop tufting machine, with the new, completely automatic pattern control gives unexcelled sharpness in design reproduction. This is the machine the tufted textile industry has so eagerly waited to see and use.

- changes from high to low pile instantly
- creates the most even pile of any machine now available
- can run either all low or all high pile
- positive drive and yarn feed
- pattern can be reversed in minutes
- eliminates lines on the repeat
- pattern control attachment does not slow down production
- all mechanical parts easily accessible for maintenance
- aluminum tubing only 6 inches in depth

Other Super Tufter yardage machines available in 40", 45", 60", 76", 121", and 168" widths. For either Cut Pile, Short Loop or Long Loop.

Super Tufter
MACHINERY COMPANY, INCORPORATED

212 First Avenue, North
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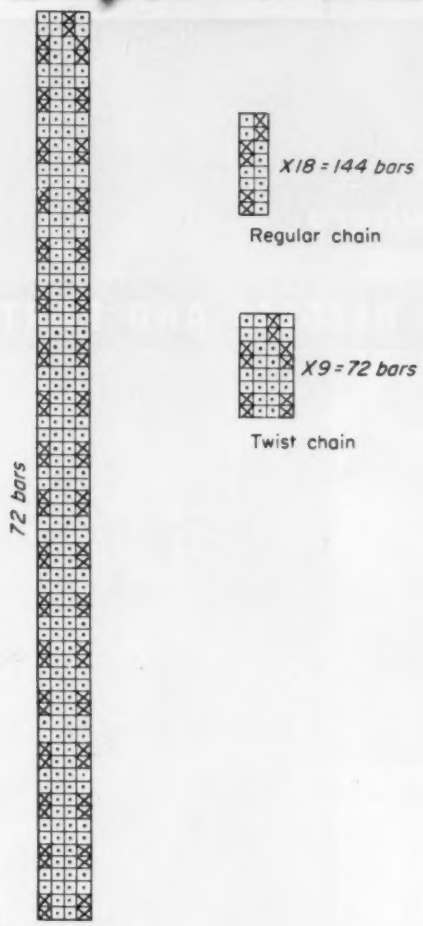
CABLE ADDRESS "SUTUF"



Twist-chain draft for 144-pick plaid fabric running three shuttles

THREE-SHUTTLE FABRIC with 144 ppi. has only 72 bars in the half-twist box chain. A conventional chain would require 144 bars and a rack.

HALF-TWIST BOX CHAIN 102 bars long is being installed on a C&K loom. A regular chain would require 204 bars and a chain rack.

Half-Twist Box Chains Improve WOOL WEAVING

Dangling box chains on looms with Knowles heads cause a lot of trouble by picking up lint and carrying it into the head motion. Much of this trouble is eliminated if half-twist box chains are used on suitable patterns.

By EUGENE P. SCHREMP, Consulting Editor, TEXTILE WORLD

YOU CAN CUT DOWN on your costs of operating Crompton & Knowles W-looms, C-looms, and other looms with Knowles heads by building box chains half-length and running them with a half-twist. The method isn't new, of course, but it often isn't used.

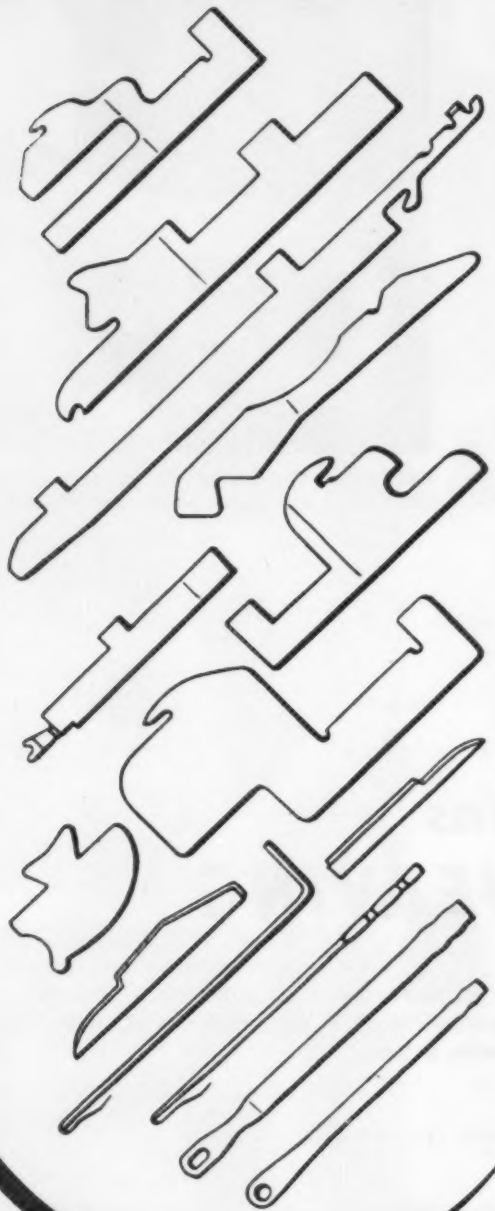
A simple formula to tell you when to use half-twist chains is: If the box chain has fewer than 50 bars, don't use a half-twist; but if the chain has 50 or more bars, use a half-twist. However, you have to be weaving the right fabric to use the chains.

The half-twist chains are used primarily on fancy filling patterns and overplaid fabrics. Most C&K looms will operate with 100 to 106 bars in the box chain; a twist chain will allow a pattern of double this number to be woven without a rack and without danger of hanging chains.

CONTINUED ON PAGE 147

Knitters Everywhere

ECONOMIZE WITH IVES NEEDLES AND PARTS



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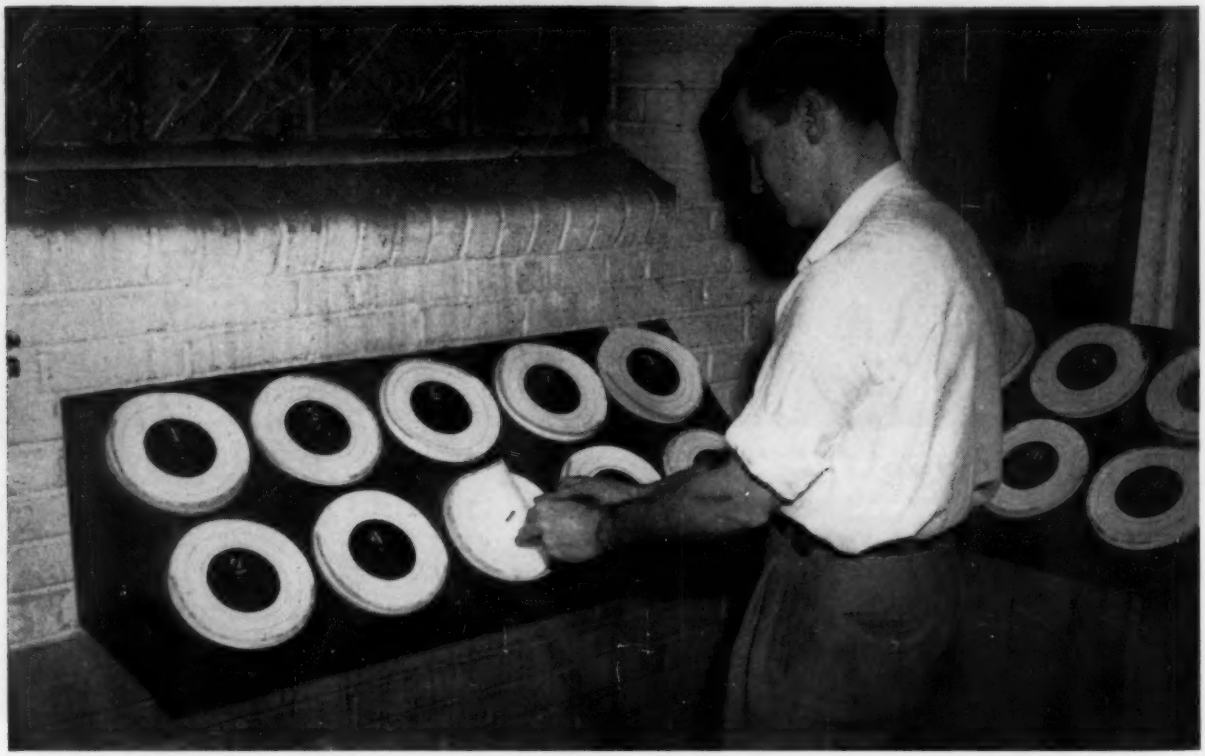


CONTROL CHARTS from 30 stations are rapidly checked by Maintenance Engineer A. M. Crowder. The charts are kept on file for about three months and are checked every day.

How Borden Mills, Inc. RECORDS MILL CONDITIONS

• A system of filing temperature and humidity charts from various control stations throughout the mill enables engineers to rapidly check on conditions that may have caused deviations from standard-quality work

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

Borden Mills, Inc., Kingsport, Tenn., has 30 control stations scattered throughout the mill to record temperature and humidity. The records are collected daily and kept in a special file in the engineer's office for easy reference.

If quality-control tests indicate that spinning is not running good, the maintenance engineer can rapidly turn up the records for that section or can check up on roving or other processes for previous times.

The control charts are collected from the various stations each morning by a maintenance man who inserts a new chart in the recorder. The charts are returned to the maintenance engineer's office, where they are checked by the engineer.

The charts are numbered according to the station they came from. A corresponding place is reserved on special racks built in the engineer's office.

The racks are made from plywood and consist of a backboard about 2 ft. deep and 6 ft. long. Another board is fastened to the backboard and supported by two triangular end pieces at a 45° angle.

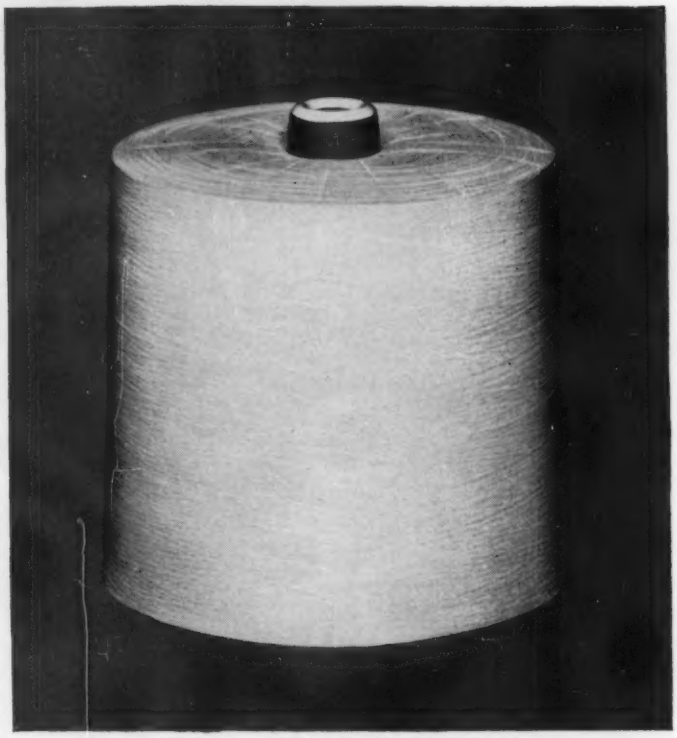
The racks are painted black and have a number of ¼-in. pins screwed at intervals on the surface. The pins are 4 ins. long and are fixed to the baseboard with two nuts.

The charts are slipped on the pins and held in place with a disk with a hole drilled in the center. The ⅛-in.-thick wooden disk is painted black and has the corresponding control-station number stenciled on it.

The disks are 4 ins. in diameter so that the last daily recordings can be checked without lifting the disks. When past recordings must be checked, the disk is lifted off the pin and the charts are turned up at the edges so that there is no need to lift off the charts.

The charts are kept on file for about three months.

The controllers are calibrated once each one or two weeks. Department superintendents also regularly check the conditions in their sections throughout the day.



new package
cuts creeling costs
up to 26%...
improves quality

CELANESE* ACETATE YARN NOW AVAILABLE ON 6-LB. CONES

Celanese has developed a new 6-lb. acetate yarn cone which offers weavers and knitters definite advantages in both cost and quality. These are:

1. Reduction in labor costs in quilling, warping and knitting because of longer runs. Savings run up to 26% in warping, 15%-20% in backwinding and redrawing, 3.5% in quilling.
2. Extremely low average knot count per pound of yarn (average of slightly over *one knot per cone!*).
3. Fewer knots in beams due both to less frequent transfer and to fewer breaks—particularly important in heavier deniers where large knots pick up dirt passing through tensions, drop wires, heddles, etc.
4. More uniform tension throughout the cone as a result of the large supply package used in coning.

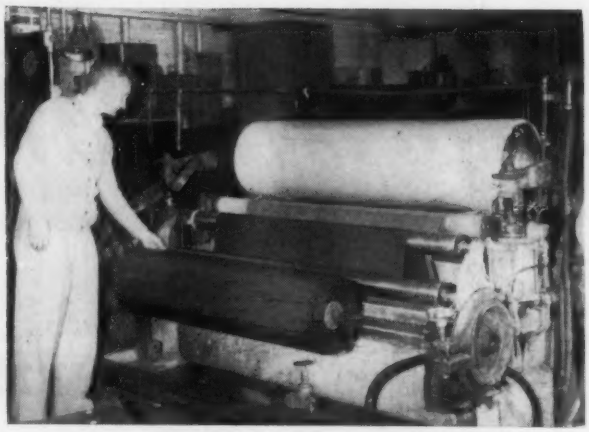
For further information, write Celanese Corporation of America, Textile Division, Charlotte, North Carolina.

*Reg. U. S. Pat. Off.

Celanese* Fibers for Industry

FORTISAN* RAYON • FORTISAN*-36 • ARNEL* TRIACETATE • ACETATE • VISCOSE-RAYON

COVERED JIGS work well for dyeing Dacron by the carrier method. Live-steam jets keep the temperature high and uniform in the enclosure. Jerry Cutrona shells up a dyed roll of Dacron pique.



PAD TENTER RANGE is used to complete the finishing operation. Resin finishes are applied, dried, and cured in one run. Auxiliary heat boosts temperatures for quick curing.

How V. T. M. DYES DACRON

V. T. M. Finishing Corp., Paterson, N. J., specializes in jig-dyeing synthetics. It has found that successful carrier-dyeing of Dacron depends on—

- **Thorough preparation**
- **Careful selection of dyes**
- **A stable and effective carrier**
- **Covered jigs to insure even, high temperatures**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

SUCCESSFUL DYEING of Dacron fabrics at normal pressures and temperatures at V. T. M. Finishing Corp. is based on an adequate scour before dyeing and an improved carrier. There is considerable variation in materials and amounts of sizing used in preparing Dacron for weaving, but V. T. M. has developed a scouring method that leaves the fabric clean and ready to take dye.

One of the styles handled at this plant is a Dacron pique weighing 30 lbs. per 100 yds. and finishing at 42 ins. wide. To get this fabric ready for dyeing, a scour bath is made up in the jig containing 2% of a synthetic detergent blended with low-flash mineral solvents plus 2 to 4 lbs. of caustic soda. The fabric is run in this bath at 190 to 200° F. for two to four ends.

If the sizing material begins to build up in the bath and form a scum, the jig is flooded over and scouring may have to be continued in a fresh bath. Waxy materials in the size sometimes tend to resist emulsification, and every effort is made at V. T. M. to remove them. Scour baths are always flooded over to get a gradual cooling of the fabric, and a warm rinse generally completes the scouring operation.

Compounded Carrier Used

V. T. M. uses a proprietary product, Emkalar DA, as the carrier for Dacron dyeing. Based on methyl salicylate and other cycloaromatic materials, the carrier helps produce a full range of shades that show good washfastness and crockfastness.

The scoured goods are first run one end at 140° F. in a bath containing 3 lbs. of a good dispersing agent. Then the dispersed acetate colors selected for high-temperature work are added to the bath and the goods run two ends at 140 to 150° F. A thorough saturation of the goods with color and dispersing agent is accomplished by this part of the process although little or no actual dyeing goes on.

For the next two ends, the carrier is added to the bath, half going in on the first end and the balance on the second end, at a temperature of 160° F. Then the temperature is raised to 190 to 195° F. and the fabric run four more ends.

After eight ends, a patch is taken to check the shade. Color adds are made at this time if necessary.

Covered Jigs Help

V. T. M. prefers covered jigs for Dacron dyeing and has added open steam jets at the top of the enclosure to help keep the temperature uniform and reduce condensation of dye liquors. Condensation can be productive of spots made up of color and carrier that may fall on the goods.

A point that V. T. M. stresses in Dacron dyeing is that it is unwise

CONTINUED ON PAGE 200

Whose Name - WHY?

A purchase order should go to the manufacturer offering the BEST MONEY VALUE, not the lowest initial cost. Mills will find it advantageous and profitable to place orders for repair parts with a company whose policy builds parts "up" to a standard, not "down" to a price. The true measure of any replacement part is its life, performance, and reliability.

Why take a chance with a substitute just because it *may* seem to cost less? Measure true cost — you will find that Genuine SACO-LOWELL Repair Parts *cost less in the long run*. On your next repair parts order, specify Genuine SACO-LOWELL and be sure.

IT PAYS TO USE GENUINE SACO-LOWELL REPAIR PARTS

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POINTERS for SUPERVISORS

Picking the Right Man for Promotion

• The people you choose for advancement have an important effect on your own job and how well you can get it done. Your own assistants help set the pace at which you move up the management ladder.

• Yet all too often, the decision about whom to promote is made without enough regard for whether the person measures up to all the requirements of the new job. Do you think of all these qualifications before you say, "This is the man"?

By M. A. CROSS, Director of Industrial Relations, Dan River Mills, Inc.

Picking the right man for promotion is seldom easy; but the problem is especially difficult when the contemplated move is from production worker to foreman—or, in more general terms, from a relatively routine nonsupervisory job to one that involves the direction of other people. Here, for the first time, the acid test is no longer "What can he do?" but rather "What can he get other people to do?" The whole emphasis shifts from how effectively he works to how effectively he can get other people to work for him. It's a big switch; and not everybody can, or wants, to make it.

If you're a supervisor, no doubt you have heard many times that the fact that a particular employee is a good producer does not mean he will automatically be a good supervisor. Most likely you agree. So let's take a look at some of the things that should be considered very carefully before you place your hand on Joe's shoulder and say, "Joe, you're my man. I want you to be my assistant overseer. I know you can do the job."

1. Job Knowledge

The employee who is being considered for a supervisory position should have an above-average job knowledge. This fact may seem obvious to you; but let's explore a little deeper to find out just how important job knowledge is and how broad the term is.

Remember that this employee, for the first time, will be directing other workers. People who take orders from him will be coming to him with questions. As they run into problems in their own performance, they will need and expect his assistance.

If help is forthcoming, fine; if it isn't, confidence in him will begin to chip away. And respect and confidence in him are vital to the important job of winning acceptance from the group.

Remember, too, that this employee will have a wider job scope than before. He may have been a thoroughly competent loomfixer; but as a supervisor, loomfixing will be only one of the operations with which he is concerned. He will be directing weavers, batteryhands, smash and pick-out hands, cloth doffers, cleaners, warp tyers, etc. The more knowledge he has of all these various functions, the better job he will be able to do in breaking in new employees, answering questions as they arise, and meeting crises that develop from time to time because of defective operations on one job or another.

So in looking for your man for promotion, take into account his whole knowledge of the operation he will direct, not just his knowledge of the particular job he is now on.

2. Stability

A man promoted to a supervisory position will face a situation that is more trying on the emotions. Greater responsibilities mean a greater burden. Having to make decisions that affect other people means a greater burden. Then, too, the need to meet production schedules and quality standards, keep costs in line, handle the required paperwork, maintain satisfactory employee relations—these and many other supervisory duties all set up greater pressures than those to which the employee was previously exposed.

Yet precisely because the employee is a supervisor, in a position of leadership and responsibility, he must exercise sound judgment and contain his emotions, regardless of the pressures at work at any given time. To meet this test, an individual must be emotionally stable; so look for that kind of steadiness in anyone you are considering for promotion.

3. Intelligence

Maybe "intelligence" is the wrong word to use to get across the point I want to make next, but I can't think of a better one.

A production worker may be on a job where his performance depends primarily on his dexterity and speed in a routine operation. He may never move from one loca-

CONTINUED ON PAGE 147

NEW

Lint-tight

LOOM SWITCH

with important

DESIGN LEADERSHIP

features . . .

- Flush handle reduces possibility of damage or accidental operation. Easy to operate with simple up-and-down motion. Handle position clearly shows whether starter is ON or OFF.
- Over-center cam type cover latch provides heavy clamping pressure on neoprene sealing gasket.
- Vibration or shock conditions will not affect toggle mechanism.
- Simplified wiring. Line terminals at bottom for easy floor pedestal mounting.
- Plenty of wiring space. 1¾" top and bottom. ½" at each side.
- Cover is interlocked to prevent opening when starter is "ON."
- Protected type overloads permit group fusing of several motors on a single branch circuit.
- Mechanical linkage is provided to force contacts open with direct pressure from handle.

Write for Loom Switch Bulletin 2510-R.
Address Square D Company, 4041 N. Richards Street, Milwaukee 12, Wisconsin.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

POINTERS CONTINUED FROM PAGE 145

tion. Materials are brought to him, he does his job, and the materials are moved away.

But once he is made a supervisor, the whole picture changes. As a supervisor, it is his job to see that the flow of materials is not interrupted. It is his job to see that the employees at each production station have the required tools and supplies. It is his job to anticipate bottlenecks and to know what to do to get them corrected. In short, the supervisor must not only know what happens; he must understand why it happens and be able to figure out what to do about it.

Another way of saying the same thing is that a supervisor should be able to understand cause-and-effect relationships. He should be able to visualize that a problem not properly handled at one point (the cause) will lead to another problem at another point (the effect). Every supervisor in a textile mill must understand that defective yarn will lead to defective cloth, as an obvious example of a cause-and-effect relationship.

Through training and experience, a supervisor can learn what corrective measures to take or what problems to anticipate if something goes wrong on the job. He can be vastly more effective, however, if he has the intelligence to be able to think through new problems as they are presented and work out the solutions, even with no past experience to fall back on.

As a supervisor moves up in the ranks of management, the ability for understanding cause-and-effect relationships becomes ever more important. So in selecting an employee for his first supervisory position and looking to his future potential, give some thought to the matter of whether he has the intelligence or vision to grow in this particular ability.

4. Communications Ability

I have already stressed that an employee taking over a supervisory position would be tested by how effectively he gets others to work for him.

How well he does this will depend, in part, on his ability to communicate to employees under his direction. "Communicate" is used in a very broad sense—giving orders and instructions, passing on information that employees should know, and even teaching new employees or training present employees in changed methods and procedures.

Since the new supervisor will be depending on others to meet his objectives, he should be able to get across to them what he expects them to accomplish and why. Employees under his supervision should be able to understand his instructions; new employees should be able to learn their job duties within a reasonable training period; all his subordinates should be instructed properly in any changed operations.

Not all good workers have the ability to communicate effectively. Many good producers are not good teachers or instructors. Yet that is one of the key talents that will enable the newly promoted supervisor to meet his new test—effectively directing the work of others.

5. Leadership Potential

In the shift from a routine production or maintenance job to the more-challenging responsibilities of a supervisor, the promoted employee changes his role from follower to leader. While he still must be responsive to the leadership of individuals at higher levels of management, his task is complicated by the fact that he must provide the leadership for the work group reporting to him.

It is the presence or absence of leadership qualities that can determine the ultimate success of the new supervisor. Even if the candidate has the other characteristics needed in a supervisory assignment, the lack of talent for leadership will hamper his performance and limit the extent to which he can rise in the organization.

How do you recognize leadership qualities in an individual in a job where he is not called upon to display them? Is there any formula to follow that assures you of the proper choice? I don't think there is; but that doesn't mean you can't find evidence that a particular individual is recognized for his leadership qualities. In almost every work group, there is one person to whom the other members of the group turn. They look to him for information, they check with him about rumors, they expect him to act as their spokesman.

Or possibly there is a person you work through when you have an emergency situation or have a change to be installed. You turn to him because if he works with you wholeheartedly, you know the whole group will follow.

You might also look at their activities off the job. If they have leadership jobs in the church, in clubs, or similar organizations, they may possess the qualities you are looking for.

These points are not an all-inclusive list of the things to consider in picking a man for promotion to a supervisory job. They do suggest some of the characteristics required in the effective supervision of other workers besides the fact that the man is an outstanding producer in his present job.

WOOL WEAVING CONTINUED FROM PAGE 139

Advantages of half-twist chains are:

1. They save time and chain stock.
2. They eliminate buying or making chain racks.
3. Head-motion trouble from dragging chains that pick up lint are eliminated.

Watch These Trouble-Makers

There are several things that will cause a half-twist chain to operate improperly. To avoid the gremlins:

1. Don't use a chain too short; it may bind.
2. Avoid double-thick chain links unless they are slightly worn and the chain is at least 100 bars long.
3. Avoid skip boxes, if possible. Try to arrange the filling so that the shuttle boxes won't jump from No. 1 to No. 3 and from No. 2 to No. 4.

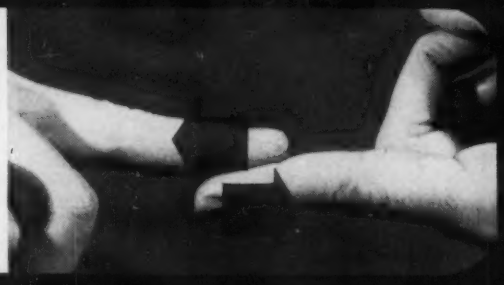
Other gremlins may pop up after a warp is started up and cloth is being woven. One way to be sure the chain will operate correctly is to put the half-twist chain on an empty loom. Then turn the head motion over by hand and observe the motion of the shuttle boxes as each chain bar goes under the vibrator levers. Let the chain make two complete revolutions until it repeats the pattern.

To prevent twist-chains over 100 bars long from dragging on the floor, fasten a spindle and spool on the chain guide. The maximum length of a box chain that can be used without a chain rack is determined by the type of loom. But the box chain should clear the floor and never drag.

Crompton & Knowles convertible looms have four box levers, and two of the levers are not used when the looms are run as 4x1 automatic looms. To prevent the lifter chains from working unnecessarily on these looms, disconnect them at the box lever and wire them to the loom.

SYTON controls interfiber drag, lets you spin finer yarns

Friction?
YES!



Tackiness?
NO!

Syton is an odorless, translucent, pH-stable silica sol for use alone or with other finishes. It deposits on fibers in millions of submicroscopic particles. They hold fibers in place, enable you to spin lighter, finer counts from coarser fibers.

Syton: Reg. U. S. Pat. Off.

Here are more advantages you get with Syton:

- Fast, easy carding
- Less twist for the same strength
- Fewer ends down
- More uniform, condensed rovings
- Higher spinning speeds
- Increased tensile strength
- Improves processing of 100% synthetic fibers and blends

You'd be interested in "Profitable Spinning of Wool and Wool Blends with Syton." It gives the full story—technical data, illustrations, case histories. Phone the local Monsanto representative now, or write: MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, 710 North Twelfth Blvd., St. Louis 1, Missouri.

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EQUIPMENT AND SUPPLY NEWS

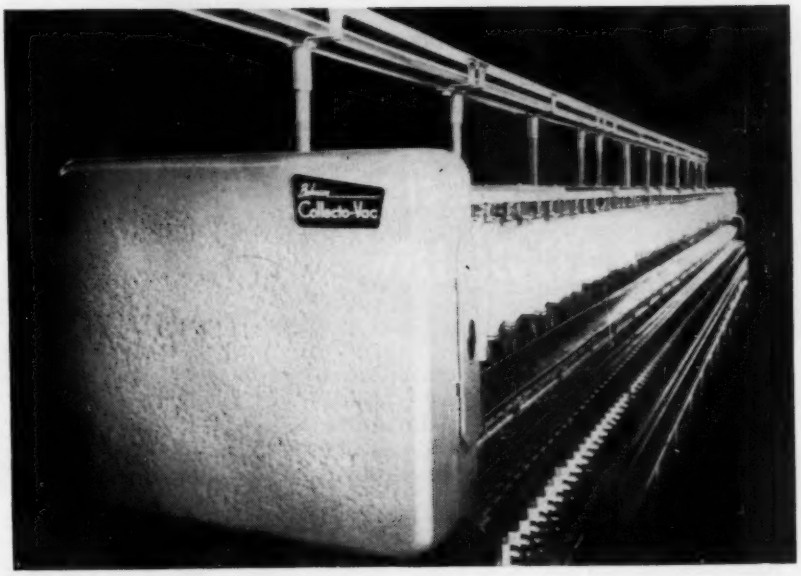
EQUIPMENT and SUPPLY NEWS

Vacuum Collector

A vacuum collector for lint and broken-ends recovery, the Collecto-Vac, has been introduced by Bahnson Co., Winston-Salem, N. C.

Featuring simplified construction for easier maintenance, the system achieves a high suction efficiency with low power consumption. The fan and motor are both housed within the collection box in one model; another model is belt-driven and has the motor mounted externally.

Suction flues of anodized aluminum have flexible suspension for interchangeability and accurate positioning. The flutes resist warpage and, because of their electrolytic characteristics, minimize the buildup of static electricity on the collecting surfaces. Even pressure distribution is maintained throughout the system.



Circle T-1 on Reader-Service Card

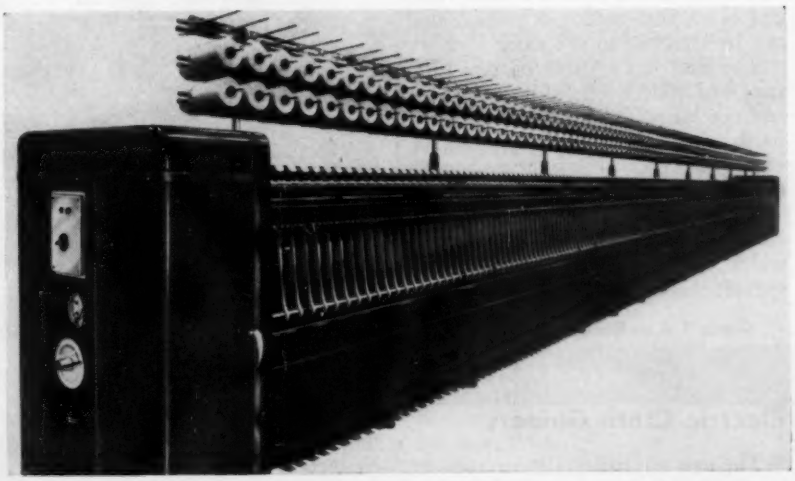
Versatile Cotton Twister

A new cotton twister, M.D.1, has been announced by Platt Bros. (Sales) Ltd., Oldham, England. The machine will twist yarns from 8/2 to 160/2 on both the wet and dry systems.

Lifts are available from 6 to 12 ins.; ring sizes to 3¼ ins.; gauges to 4¾ ins. Width of the frame is 2 ft. 8 ins.

Change wheels in the head-end gearing have been discarded; twist and lifter speeds are altered by turning a handle. A second handle reverses the rotation of the spindles and delivery rolls. With the exception of a pulley change on the main drive to vary the spindle speed, there are no wheel changes in the driving mechanism.

At the gearing end, the main drive is transmitted by chain to a reversing box and then to a variable-speed unit. An electro-magnetic building unit, driven from the output shaft of the variable-speed unit, provides a traverse that permits smooth, quick reversal. This action prevents sloughing at the end of the bobbin and improves the build of the package.



Antiballooning rings are available for lifts of 10 ins. and over; these rings permit spindle speeds in excess of the normal 6,000 to 8,500 rpm.

Circle T-2 on Reader-Service Card

Yarn-Laboratory Equipment

Scott Testers (Southern), Inc., Box 834, Spartanburg, S. C., is now manufacturing and selling three reels and a yarn-examining machine formerly made and sold by Standard Mill Supply Co., Pawtucket, R. I.

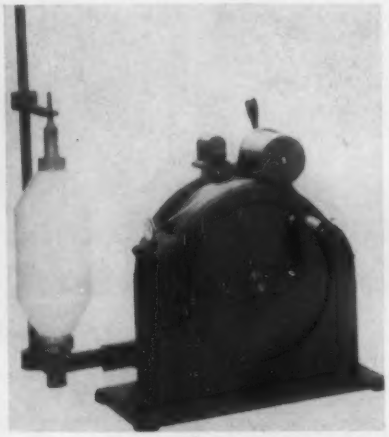
The hand-operated 36-in. roving reel, *A*, is equipped with a yardage counter that is visible at all times. An adjustable creel will take various sizes of bobbins.

The hand-operated yarn-examining machine, *B*, has five speeds that control yarn spacing and is equipped with an adjustable tension stand and supply attachment for bobbins or cones.

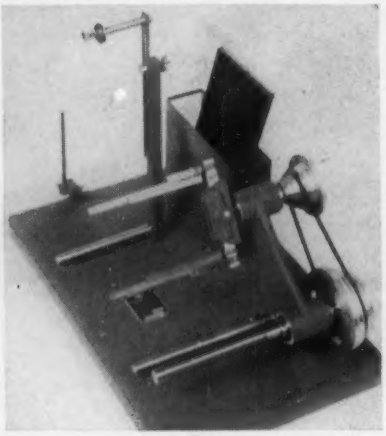
The umbrella skein reel, *C*, holds skeins up to 72 ins. for winding and examining.

The hand-operated 36- or 54-in. yarn reel, *D*, is equipped with a direct-reading three-digit counter. Traverse is adjustable. The device produces four skeins in one operation.

Circle T-3 on Reader-Service Card



A



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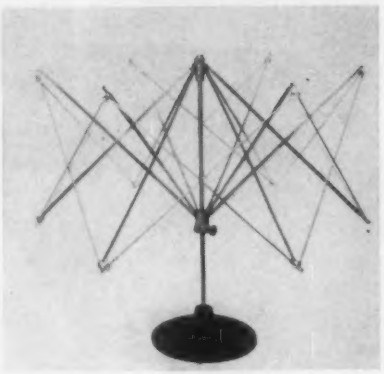

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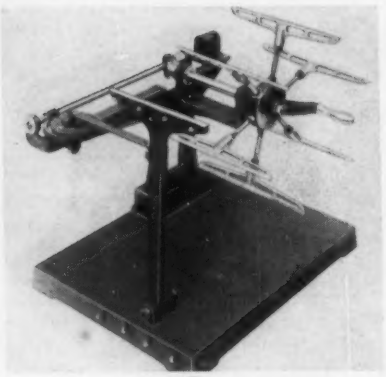


D

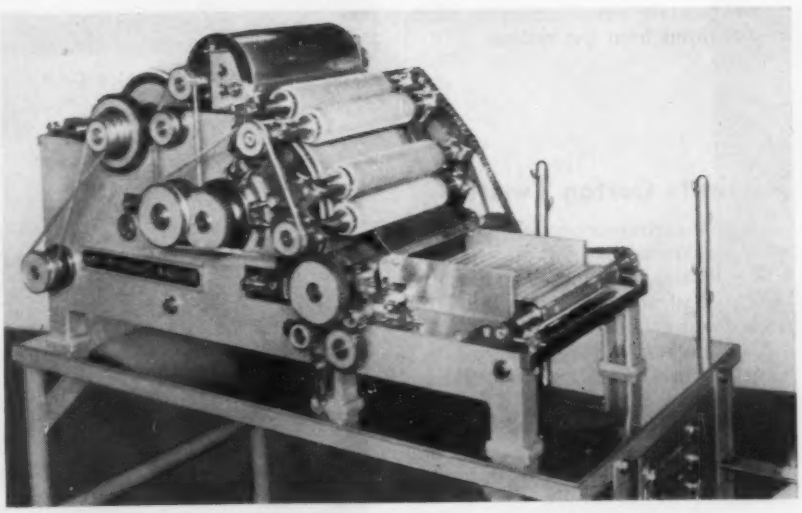
Sample Wool Card

Stellite American Corp., New York, N. Y., has announced a new Anton Guillot sample wool card. The card consists of two parts: (1) the sample card itself with a 12-in. working width and (2) a tape-condenser section that can be attached to the card.

The unit has a small breaker card, two feed rollers, one stripping roller, and one breast roller covered with sawtooth wire to insure a thorough opening of materials. There are two workers and two strippers.

The two-bank tape condenser has a special patented drive, and optimum width of tapes makes it possible to spin fine and coarse yarns.

Circle T-4 on Reader-Service Card



Electric Cloth Guiders

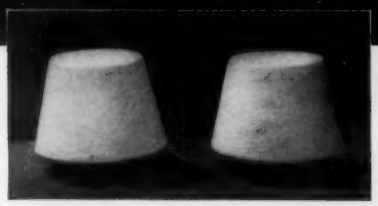
The new electric guiders announced by Guider, Roll & Service Co., Daytona Beach, Fla., are equipped to dissipate the flash or hot arc that heretofore has caused switch contacts to burn. Although the switches on these units will wear out eventually, the contacts will never burn out; there is provision for quick switch replacement.

The guiders, called Hetherington Super Electrics, also have an arrangement whereby the position of the rubber cradle roll can be adjusted in relation to the front or stationary roll. The rolls are brought closer together for fine fabrics and farther apart for heavier goods. The guiders eliminate practically all side-to-side motion.

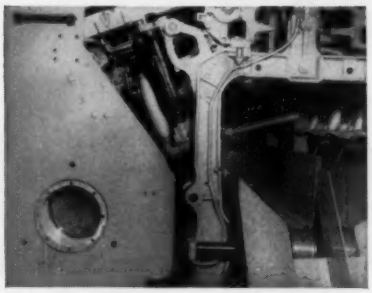
Circle T-5 on Reader-Service Card

FOSTER MODEL 202

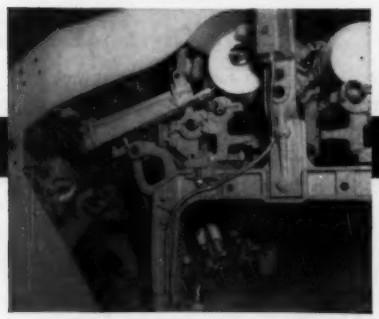
...The ONLY Automatic Cone Winder Which Gives You QUALITY with QUANTITY



Model 102 and Model 202 cones.



Full bobbin moving into supply position and empty bobbin being doffed to conveyor.



Looking into automatic tender and showing aspirator which sucks up loose end from cone.

Look at the two cones illustrated. They appear identical because they *are* identical. Yet one was wound on the Foster Model 102 and the other on the Foster Model 202. Enough said, perhaps, since Foster Model 102 cones have been the standard of quality in the knitting industry for many years.

KNITTABILITY of cones is an exclusive feature of the Foster Model 202. So why look elsewhere when the Model 202 also gives you all the other features you want as follows? —

- INCREASED PRODUCTION PER OPERATOR — between 100% and 300% over non-automatic winders.
- AUTOMATICALLY positions supply, locates and ties ends down (in weaver's knot), doffs bobbins, conveys empty bobbins to one bin and partially filled bobbins to another.
- ONLY DUTIES OF OPERATOR are to put full bobbins in chutes, put loose end in clip, don and doff cones and thread up new cones.
- PAYS FOR ITSELF in 2 to 5 years.

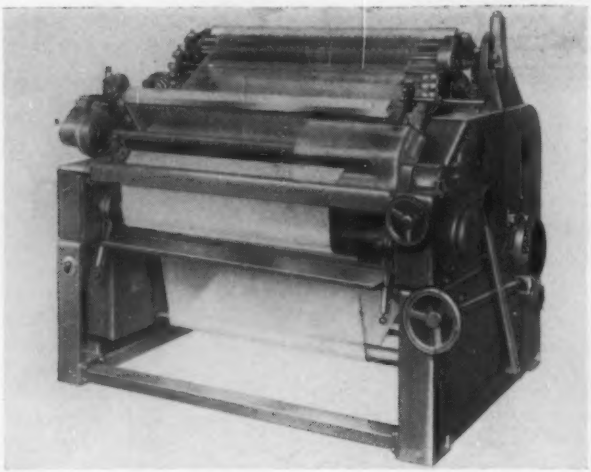
Get ALL the facts. *Write for Bulletin A-100.*

FOSTER MACHINE COMPANY

Westfield, Massachusetts, U.S.A.

A Winder for Every Textile Purpose

Southern Office — Johnston Bldg., Charlotte, N. C. • Canadian Representative — Ross Whitehead & Company, Limited, 1475 Mountain St., Montreal, Que. and 35-37 King St. W., Toronto, Ont. European Representative — Muschamp Textile Machinery, Limited, Keb Lane, Bardsley, Oldham, England.



Shuttleless Looms

Two shuttleless looms are being made by Kovo, Prague, Czechoslovakia. Both looms use jets in place of shuttles to insert the filling yarn into the warp.

A small loom with a reed space of 17½ ins. weaves cotton cloth at 700 ppm. The filling is inserted with a stream of air escaping from a jet and is taken from a cone of yarn. The filling is cut at each pick, and a leno-weave selvage holds the loose ends in place. One compressor unit and tank serve several looms. Air pressure is 28 to 40 psi.

The second loom has a reed space of 42 ins. and uses jet-propelled water to insert the filling. The fabric is only slightly wet. Humidification is not necessary. Each loom uses 5 to 10 gals. of water every 8 hrs. The warp-yarn beam and roll of woven cloth are located at the back of the machine. The yarn beam is 20 to 27 ins. in diameter. The machine weaves synthetic filament yarns of 20 to 60 den. at 350 ppm.

Circle T-6 on Reader-Service Card

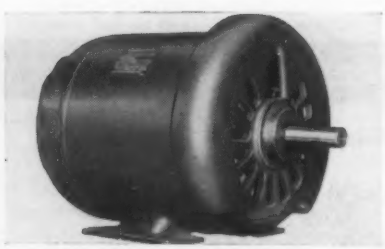
Large-Package Yarn Bobbin

A filling bobbin for hand-threaded shuttles designed by B&B Perimeter Ltd., Bradford 3, Yorks, England, increases the amount of yarn up to three times with the same outside diameter.

The device is a small-diameter tube that slides over the shuttle spindle the common way. Each end of the tube has a metal insert with a raised surface to insure that the yarn comes off the tube at a constant tension. Since the yarn tension is constant and there is no drag, faster loom speeds result.

The center shuttle (arrow) in the picture shows the old bobbin. The other four shuttles show the new tubes.

Circle T-7 on Reader-Service Card



Motor for Dirty Places

A ½-hp. totally enclosed fan-cooled motor has been added to the line of motors manufactured by Century Electric Co., 1806 Pine St., St. Louis, Mo. The motor is for single-phase and polyphase operation.

The motor is recommended for dirty, dusty, and fume- and mist-laden atmospheres that damage ordinary motors.

The motor meets all NEMA requirements.

Circle T-8 on Reader-Service Card

Return Drive for Tester

To facilitate breaking-strength tests, Scott Testers Inc., Providence, R. I., has added an instant-return feature to its incline-plane serigraph. The addition of the drive permits instant return to starting position from any point of the test cycle by the touch of a lever on the gear box.

The new feature allows faster operation in production testing for tensile strength and makes the machine more flexible for any type of test.

Circle T-19 on Reader-Service Card

DRAPER ALL-STEEL TOP DRIVE ANTI-FRICTION SPINDLES . . .

FOR INCREASED SPINDLE SPEEDS AND HIGHER QUALITY YARNS.

Developed to meet specific mill requirements, the new Draper Anti-friction spindle is the answer to better spinning at lower costs.

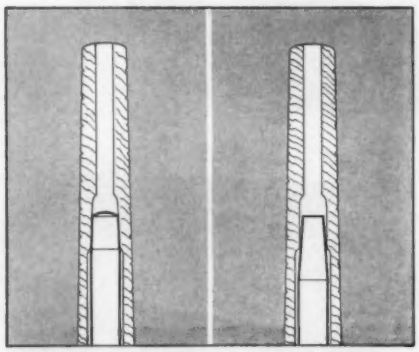
The new incorporated whorl design permits easy removal of waste yarns when doffing and simplifies manual braking.

Bolster life, spindle speeds and quality of yarn are all *increased.*

Power requirements, lubrication cycle, blade vibration and ends down are *all reduced.*

Let a Draper spindle specialist analyze your spindle needs today . . . for better spinning at lower costs.

Draper Anti-friction spindles are currently available with Acorn, Clutch, Top drive. (Band or Tape)



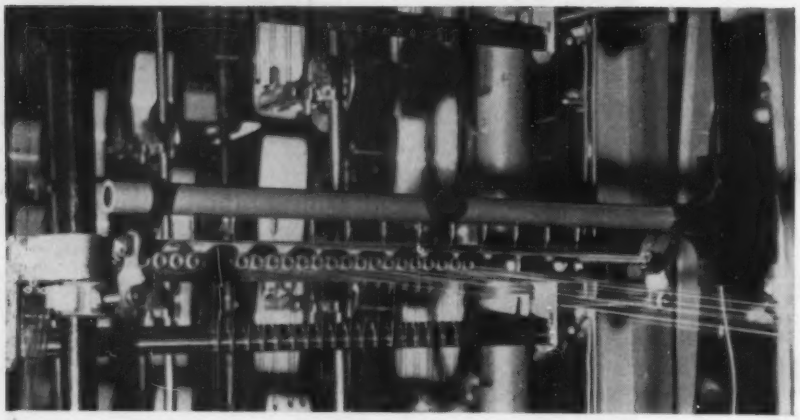
CONFORMING FIT **LINE FIT**

Compare above views which illustrate why Draper *conforming fit* spindles reduce bobbin rise, vibration and spindle wear.

DRAPER
CORPORATION

HOPEDALE, MASS.

ATLANTA, GA.
GREENSBORO, N. C.
SPARTANBURG, S. C.



Antistatic Bars

An Oxy-cold-bar static eliminator has been developed by Herbert Products, Inc., 74-32 Jamaica Ave., Woodhaven, N. Y. The bars are for creels of all makes and sizes.

The bars, which can be installed in about 2 hrs., are fitted to the front eye bar of the creel. All bars take their power from one unit, but the units are safe enough to allow the bars to be removed while the power is on without danger of shocks.

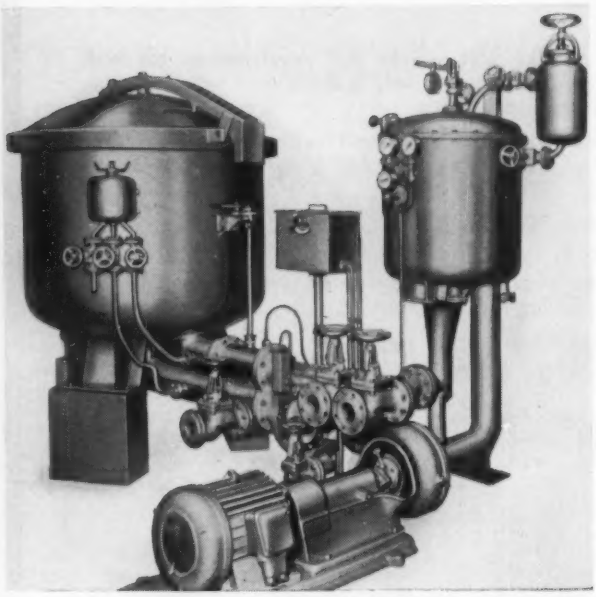
Circle T-9 on Reader-Service Card

High-Temperature Dyeing Machine

Package-dyeing machinery that can be operated at up to 35 psi. is being offered by H. Kranz Maschinenfabrik, Aachen, Germany.

Stainless steel is used wherever dye liquors contact the machine. Heating coils for the dye liquor are contained in the expansion tank. Cooling coils are built into the bottom of the dyeing chamber. Additional vessels for adding color while under pressure and for sampling are provided. Liquor-flow reversal is automatically cycled. The cover of the main tank is hinged and has a patented quick-locking device.

Circle T-10 on Reader-Service Card



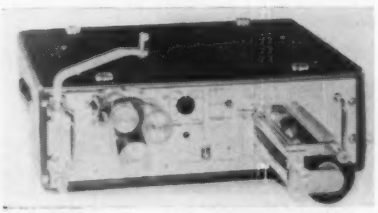
Jack Spool and Cloth Roll

The Flex jack spool and aluminum cloth roll, formerly manufactured by Flex Spool Co., Pittsfield, Mass., is now being produced by Thomas Leyland Co., Inc., Readsville, Mass., a subsidiary of James Hunter Machine Co. and purchaser of Flex Spool Co.

Available with 9- and 10-in. heads in both corrugated and slotted models, the spool is made so that the head will flex instead of break when thrown or dropped.

The aluminum cloth roll features both internal and external locking that keeps parts from working loose.

Circle T-11 on Reader-Service Card



Material Drive and Rewind

A combination material drive and yarn rewind for running test lengths of yarn, sliver, or roving has been announced by Brush Electronics Co., Cleveland, Ohio. Designated as Model BL-853, the unit is a combination of the two individual units that previously had been produced. The unit can be used with the Brush uniformity analyzer or similar evenness-testing equipment.

Circle T-12 on Reader-Service Card

EQUIPMENT AND SUPPLY NEWS

Of course you want automation! The Pneumafil Central Material Recovery System is recovering usable fiber —delivering it to your picker room— blending it uniformly for more even yarn counts—automatically! It eliminates doublings, collects fly, decreases ends down 30%; maintains a constant humidity (5% variable), a consistent temperature, and a uniform pressure at each spindle.

THIS IS TODAY'S CLOSEST APPROACH TO MILL AUTOMATION

Even so we can't recommend this installation on EVERY job . . .

This is just one of the Pneumafil Systems — Let us help you decide which system is made for your mill.

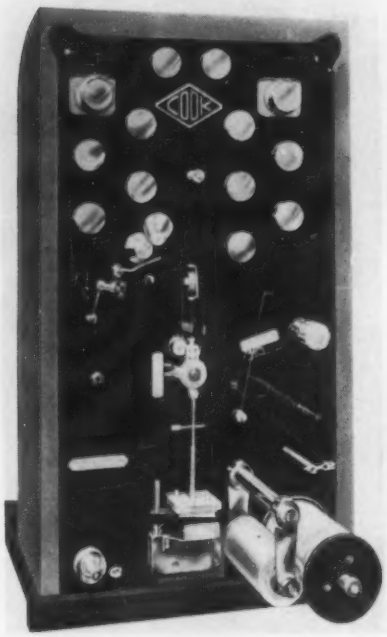
PNEUMAFIL CORPORATION
CHARLOTTE 8, NORTH CAROLINA

Pneumafil Economizer Unit System
Central Air System
Central Material Recovery System
Lint Free Creel
Pneumastop ®
Pneumacard ®

PNEUMAFIL®

PRODUCTS OF PROGRESS >>

Atlanta, Georgia *Needham Heights, Mass.*



Continuous Yarn Tester

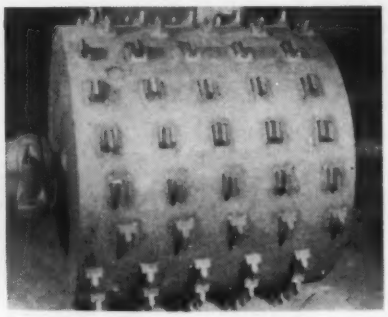
A constant-tension device that will detect the frequency and distribution of weak places in long runs of yarn has been developed by Cook & Co., 18 Exchange St., Manchester, England. Distributed by Stellite American Corp., 60 E. 42nd St., New York 17, N. Y., the tester reveals the suitability of a yarn for high-speed weaving because it points up the number of weak points in the sample, which is a more valuable indication of yarn quality than average breaking strength.

Circle T-13 on Reader-Service Card

Weaving Without Knots

Weavers don't need to tie knots if they use Splicegrip, a fast-setting flexible adhesive manufactured by Adhesive Products Corp., 1660 Boone Ave., New York 60, N. Y. The weaver merely applies the adhesive to the tip of the yarn ends, and the ends are bonded together. The spliced ends weave into the cloth without disturbing adjoining ends.

Circle T-15 on Reader-Service Card

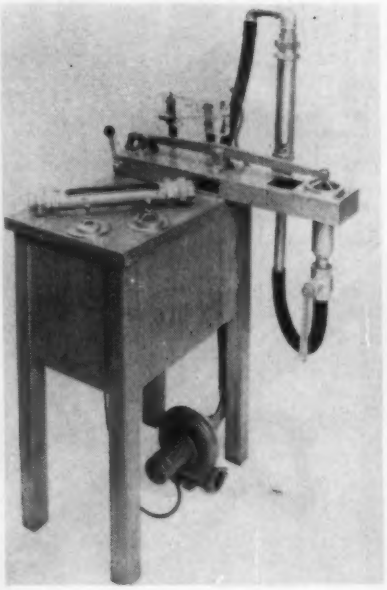


Bale Breaker

A redesigned bale-breaker cylinder is announced by Taylor, Stiles & Co., Riegelsville, N. J.

On the former models, teeth were welded directly onto the cylinder; tapered sockets are now employed. The teeth are driven into the sockets, and movement of the cylinder tends to tighten the teeth. When a tooth wears out, it is driven out of the socket and replaced.

Circle T-16 on Reader-Service Card



Air-Permeability Tester

The air-permeability tester developed by Karl Frank, GmbH., Weinheim-Birkenau, Germany, allows the results to be read immediately after the material has been inserted. The instrument has a vertical glass tube with an inner diameter that increases slightly toward the top. As air flows through the tube, a float with a conical bottom is forced upward and indicates the amount of air flow.

The instrument can be regauged by using sheet-metal plates perforated to a predetermined air permeability.

Circle T-17 on Reader-Service Card

Short Electric Motors

Shorter motors in round-frame flange-mounted designs have been announced by Century Electric Co., 1806 Pine St., St. Louis, Mo. The motors replace the old design in the 1- to 15-hp. range.

The motors are unusually short to save installation space. They are furnished in the open frame or totally enclosed fan-cooled design. They can be mounted either vertically or horizontally.

Circle T-14 on Reader-Serivce Card

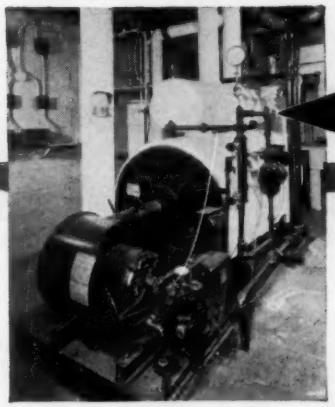
Rub Apron

A longer-lasting rub apron designed to improve yarn uniformity has been developed by Dayton Rubber Co., Dayton, Ohio.

The construction of the apron gives it greater gripping qualities than previous types. Eccentric motion is reduced, which makes the apron last longer. The aprons have two layers of rubber-impregnated, reinforced fabric. There are stronger ends to hold the buttons securely in place.

Circle T-18 on Reader-Service Card

CONTINUED ON PAGE 202



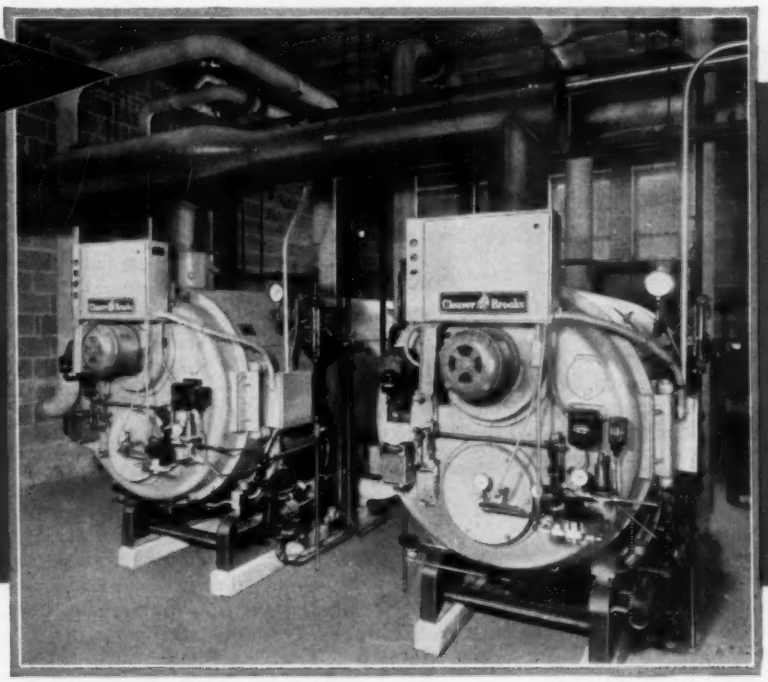
1931

Cleaver-Brooks pioneers big steam capacity in small space

This veteran 20-hp heating boiler — built by Cleaver-Brooks and installed in 1931 — is still in daily use. It is proof of the dependable service you can expect from Cleaver-Brooks' famed four-pass, self-contained boiler construction for any heating or processing need.

1955

Cleaver-Brooks is first again with the ALL NEW "CB" boiler



The "CB" is the most easily maintained package boiler on the market. Removal of only nine bolts (on the largest sizes) opens hinged doors for fast inspection, cleaning or service. This convenience has earned widespread praise of insurance firms.

- **All main burner components are completely integrated for automatic operation.**
- **More boiler capacity in less space through elimination of extended burner assembly platform.**
- **Guaranteed 80% efficiency — Four pass construction. 5 sq. ft. of heating surface per bhp.**
- **11 sizes — 79 models — 15 to 150 hp, (steam or hot water) for oil, gas or combination oil/gas use. Other models available through 600 hp.**
- **Complete (Boiler-Burner) unit approval by Underwriters Laboratories — conforms to ASME codes. Factory tested before shipment.**

BOILER users will quickly appreciate the surprisingly silent operation of the new forced-draft "CB" — *with the fan mounted inside the front hinged door.* Design avoids use of thin sheet metal housings and usual "chattering" and vibration.

Even greater combustion efficiency is yours with the new "CB" air-atomizing burner, with integral air compressor. All burner components are confined to the front head and the control panel is at operator eye level.

For complete facts on the boiler that's ahead in design, performance and economy, write: Cleaver-Brooks Company, Dept. M, 361 E. Keefe Ave., Milwaukee 12, Wis., U.S.A. Cable Address: CLEBRO — Milwaukee — All Codes.

Write for copy of latest "CB" Boiler Bulletin covering your size requirements — contains specification data to help you plan.

Cleaver Brooks

Originators of the self-contained boiler

NEW DYES and CHEMICALS

Chrome Colors

Metomega Chrome Orange PML . . . has outstanding lightfastness and is faster to potting and cross-dyeing than Metomega Chrome Orange ML. (D-1)

Omega Chrome Olive GL PAD . . . has a lightfastness rating of 6 to the Fade-Ometer and 7 to daylight; also fast to carbonizing, fulling, cross-dyeing, and potting. Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y. (D-2)

Direct Colors

Lumicrease Yellow EFUL and **Lumicrease Orange 3LG** . . . have lightfastness rating of 7 to both Fade-Ometer and daylight. Recommended for decorative and automobile fabrics. Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y. (D-3)

Thickener

Burtonite V-7-E . . . a guar-seed derivative used for print pastes; forms viscous solutions that are not affected by organic acids. Burtonite Co., Nutley 10, N. J. (D-4)

Vat Blue

Denivat . . . developed for dyeing yarn going into denims; provides deeply penetrated dyeings that resist fading from wear and washing. Southern Dyestuff Co., Charlotte, N. C. (D-5)

Chrome Dye

Chromoxane Brilliant Red BL . . . a brilliant level-dyeing dye for wool; works well by all chroming methods. Can be used on top, stock, yarn, or piece goods. Good lightfastness, excellent-to-good fastness to wet-processing and finishing treatments. General Dyestuff Corp., 435 Hudson St., New York 14, N. Y. (D-6)

Acetate Dye

Eastone Fast Pink 3B-GLF . . . produces a bright bluish pink of outstanding fastness to gas-fading, light, sublimation, and washing. Unaffected by diazotizing and developing; can be used in discharge printing, and dyes well at 160 to 190° F. Eastman Chemical Products, Inc., Kingsport, Tenn. (D-7)

Printing Thickener

Carobene . . . made in two types, Carobene D and Carobene G. Modified locust-beam gum products varying principally in the viscosity of solutions prepared from them. Work well in acid or alkaline pastes, have long-flowing characteristics, and improve color value. Buschman Products Inc., 369 Lexington Ave., New York 17, N. Y. (D-8)

Metallic Soaps

Silicures . . . a series of seven metallic soaps used as curing agents for silicone resins. Organic compounds of tin, zinc, and zirconium, they are designed to cover requirements of a wide range of treating systems. Nuodex Products Co., Inc., 78 Magnolia Ave., Elizabeth, N. J. (D-9)

Surface-Active Agent

Cerfak 445 . . . a light-colored mixture of anionic and nonionic materials useful in wetting or scouring operations. Works well over a wide pH range and is effective in chlorine- or peroxide-bleach baths. E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia, Pa. (D-10)

Nonionic Softener

Mollisan . . . an extremely versatile lubricant and softener particularly efficient in overcoming harshness of resin finishes. Resistant to yellowing at heat-setting temperatures, the product also improves tear strength and abrasion resistance on cottons, rayons, synthetics, and blends. Antistatic effect provides additional advantages in yarn lubrication. Onyx Oil & Chemical Co., Warren & Morris Sts., Jersey City 5, N. J. (D-11)

After-Soaping Detergent

Morapon AC . . . designed to increase crockfastness of naphthol, sulfur, and azoic dyeings. Useful as a dye dispersant, the product is stable to hard water and works well under normal conditions of acidity or alkalinity. Moretex Chemical Products, Inc., P.O. Box 1743, Spartanburg, S. C (D-12)

Improved Flame-Resistant Treatment

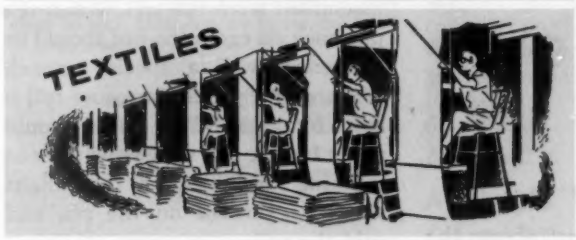
An improved flame-resistant treatment for cotton fabrics has been developed by the Southern Regional Research Laboratory of USDA.

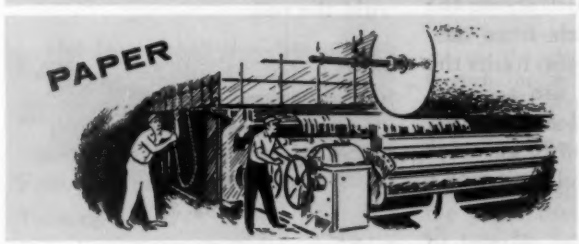
The process consists of mixing one part of bromoform allyl phosphate (BAP) with two parts of tetrakis (hydroxymethyl) phosphonium chloride (THPC) and padding the resulting emulsion on the goods, which are then dried and cured. Flame resistance is greatly improved over results obtained with either material alone. Cotton goods treated with the mixture will pass the stringent strip-burning test. The finish is highly durable to laundering and dry-cleaning.

Both products used in the new process were developed by the USDA's Southern Utilization Research Branch. Additional information about the new treatment can be obtained by writing C. H. Fisher, Chief of the Southern Utilization Research Branch, Southern Regional Research Laboratory, 2100 Robert E. Lee Blvd., New Orleans 19, La.

THIS IS NO. 113 OF A SERIES ON

Heyden FORMALDEHYDE helps in Industry's BIG JOBS...





It is interesting to note that further growth is predicted for the major products made from Formaldehyde. This applies, for instance, to phenolic molding and laminating resins—urea and melamine resins for textiles, paper and plywood—and various organic chemicals.

Heyden Formaldehyde is helping in this growth, as it has right from the original development of these products. Experience, gained through this long association with customer problems, has enabled Heyden to meet the most exacting needs of each use. As new applications arise, Formaldehyde with the proper specifications will be available from Heyden.

Both methanol-inhibited (N.F.) and methanol-free forms of Formaldehyde are supplied by Heyden. If this chemical is one of your raw materials, why not discuss your requirements with the Heyden sales office nearest you.

•

HEXAMETHYLENETETRAMINE

PARAFORMALDEHYDE

HEYDEN
CHEMICAL CORPORATION

342 Madison Avenue, New York 17, N. Y.

Chicago • Cincinnati • Detroit • Philadelphia • Providence • San Francisco

FINE HEYDEN CHEMICALS

Benzaldehyde • Benzoic Acids • Benzyl Chloride • Beta-Oxynaphthoic Acid • Chlorotoluenes • Creosotes • Formaldehyde • Formic Acid • Guaiacols
Parahydroxybenzoates • Pentaerythritols • Propyl Gallate • Resorcinol • Salicylates • Salicylic Acid • Sodium Benzoate • Sodium Formate

 For more information, write direct or use Reader-Service post card.

THIS IS NO. 113 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

HOW TO WIND BETTER PACKAGES ON THE LEESONA® NO. 50 WINDER

The new large diameter Pressure Rolls that are now being supplied for attachment to the Leesona No. 50 Precision Winder are made to give long trouble-free service. These rolls turn on grease packed bearings that do not have to be relubricated.

The new ball bearings are seated in the Roll holder, rather than in the ends of the roll itself. The small diameter trunnion pins of the roll fit inside the ball bearings and rotate with the inner race. Because only the inner race of the bearing turns, its surface speed is much reduced.

Of course, to get the longest possible use out of these pressure rolls, they must be treated properly. Here are some pointers regarding their care:

1. Do not use oil in the new pressure roll's bearings, for it will thin out the grease, allow it to work out of the bearings and cause premature failure. The bearings are grease packed by the bearing manufacturer and do *not* require any further lubrication.

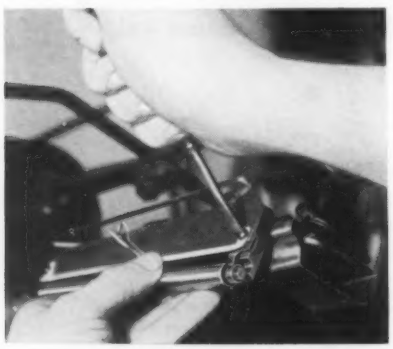


Fig. 1

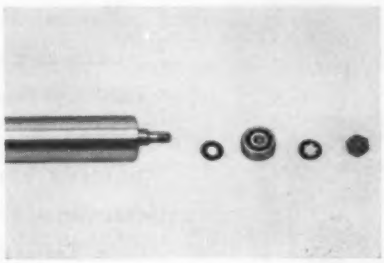


Fig. 2

2. The wire bail just above the roll prevents the guide from rubbing on the latter. It also limits the amount of yarn that can accumulate on the roll if a roller lap occurs. Do not allow wire bail to get bent back away from the roll or it won't do these things.

3. Yarn shouldn't be allowed to accumulate around the pin between the ends of the roll and the bearing because some of the fine fibers may be forced into the bearing causing it to stick.

4. If the fibers do collect around the pin the roll should be removed from the holder assembly. However, it shouldn't be forced out of the holder by springing the clips. Instead, the clips should be loosened with a screw driver as shown in Figure 1 and then the pressure roll can be removed easily.

5. As you can see, the pressure roll bearings are seated in the holder and on the outside of the roll, being held on by a small nut. Figure 2 shows the bearing disassembled from the roll. When it's put back on again the nut should be tightened with a special wrench (Figure 3) while the pressure roll is held by hand. The roller should never be put in a vise while the nut is being tightened as this might strip the threads on the pin and ruin the roll.

Fig. 3

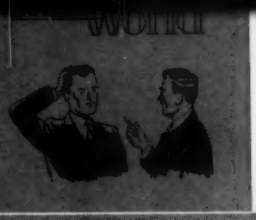
These precautions were primarily designed to keep pressure rolls in good running condition. However, their final and most gratifying result is in the quality of the packages wound on the Leesona No. 50 Precision Winder which has reached an even further stage toward perfection.

November, 1955 — 23.5.6

WINDING AND TWISTING MACHINERY FOR NATURAL AND SYNTHETIC YARNS

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA LOS ANGELES MONTREAL and HAMILTON



QUESTIONS and ANSWERS

►TEXTILE WORLD'S editors are at your service to help solve your problems in yarn manufacture, weaving, knitting, dyeing, finishing, or other textile operations. If you have a technical problem bothering you, send it along to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Figure Yarn Contraction With Fact-File Tables

Technical Editor:

We are spinning cotton-yarn numbers from 2s to 3s. The twist range is from four to six. How can we figure the twist contraction? (9920)

Twist contractions can be calculated from the table in TEXTILE WORLD'S Fact File issue, p. 29.

If you are spinning 2s yarn with 5 tpi., the twist multiplier is

$$X\sqrt{2} = 5$$
$$= 3.57$$

The table shows that the contraction for 3.57 TM is 4.62%.

Shorten Quality To Help Prevent Streaky Tricot

Technical Editor:

We are making a 40-den. dull-nylon jersey tricot with 68-in. top runners and 51-in. bottom runners. Our quality is 9¾-ins. and 6-yds. yield. The top beam yarn is 5 tpi., and the bottom beam zero twist. Can we make a better cover to produce more streak-free fabrics by changing our settings or runners? (9910)

The reasons for streaky fabrics can be briefly summarized as follows:

1. Poorly straightened knitting elements cause irregularly spaced wales. Each machine should be withdrawn from production every three to six months and have its knitting elements squared by qualified men.

2. Poor warping is usually caused by improper tension on yarns running from the creel. Irregular tension across the warp sheet results in streaks in the fabric.

3. Too-short runners reduce the fabric's cover and accentuate every streak.

4. Too-long quality has the same effect as the too-short runners and brings out streaks that normally would not have been seen in a shorter-quality fabric.

In the case involving the 40-den. dull-nylon jersey, make the runners longer and shorten the quality. Both will improve cover and relieve the streakiness of the fabric.

This step will result in a low yield; but it must be realized that the higher the yield, the greater the hazard of streaks. Zero-twist yarn on the front bar will knit better and improve the covering power of the fabric, since the back-bar yarn is also subject to greater strains. Remember that unthrown yarn in the front bar will reduce fabric abrasion resistance.

Use Opposite-Twist Yarn To Eliminate Spiral

Technical Editor:

We are knitting net fabrics of Orlon and wool on circular knitting machines, but the holes in the net are of a diamond shape instead of square. Can we eliminate the spiral? (9921)

By using opposite-twist yarn, the spiral will be reduced. If you put excess twist in the yarn, the spiral may even be eliminated providing you have no trouble knitting the high-twist yarn.

The spiral can also be taken out on a tenter frame equipped with a heat-setting unit and a differential drive to drive one set of chains faster than the other.

Tapered rolls would also reduce the spiral.

A Simple Way To Handle Cloth

Technical Editor:

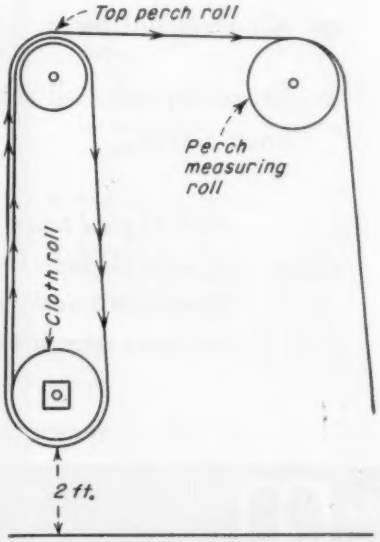
At our weave-room perch we take a cut on the cloth roll and put a pipe through the roll and through two small stands. We don't like this method and wonder if there is a better method of handling the material. (9902)

A simple way to handle cloth at the the perch that involves no stand at all may be used if there are two or more men at the perch. Lay the roll horizontally on the floor under the back top of the perch and positioned so that it unwinds toward the back.

Unroll enough cloth so that the cloth may be passed over the top roll of the perch and down under the cloth roll. Lift the cloth roll about two feet off the floor, and pass the cloth over the perch. As the cloth is perched, the roll will turn and unwind but it will not move from its position.

Some mills make a wooden stand the shape of an open box about 18 ins. high. A half-round part, the size of the roll end, is cut out at each end.

The tops of the ends are covered with flat iron stock bent to go down in the half-round cut-outs. The cloth roll is put on this stand with the cut ends acting as bearings. The advantage of this stand is that it is low and one man can roll the cuts on the stand.



CLOTH HANDLING can be done without a stand by unrolling the cloth at the back of the perch in this manner.

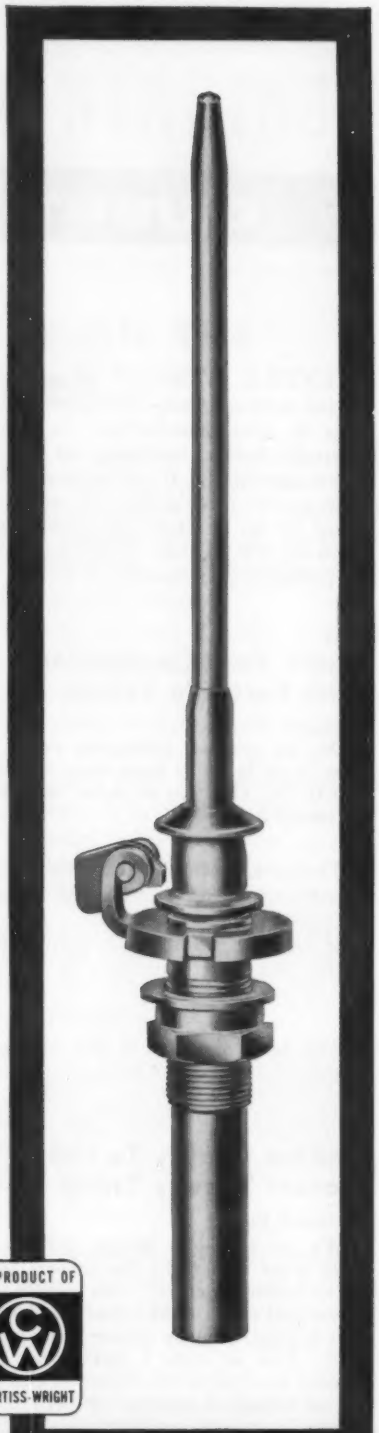
CONTINUED ON PAGE 163

Try Overwaxing Warps

Selvage ribbons are in long lengths

Waterglass gives a slight stiffening

NEW Marquette TOP DRIVE FILLING SPINDLE



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Try Overwaxing Warps To Reduce Yarn Breaks

Technical Editor:

We weave yarn-dyed jacquard upholstery fabrics with about 10,000 ends of 58/2 mercerized yarn. On constructions with 50 ppi. or more, the friction in the reed causes the ends to chafe and break excessively on our worsted looms. We have reduced these breaks by rubbing paraffin on the yarn as it comes over the whiproll. Is there a practical way to apply the lubricant while the yarn is dyed? (9890)

The relatively new method of overwaxing warps should solve your problems. Hot wax is added to slashed or dressed warps immediately after the size is dried at the cylinders.

This process is being used to some extent experimentally in Southern mills on synthetic-fiber and cotton warps. So far, the results are good.

An article on how a mill uses this method to increase weave-room production 1½% was published in TEXTILE WORLD, Sept., 1954, p. 62.

Typewriter Ribbon Inks Are Oils and Pigments

Technical Editor:

What type of carbon is used for typewriter ribbon, and what process is used to transfer the carbon into the ribbon? (9901)

Typewriter-ribbon inks are special printing inks, which are fluid mixtures consisting of a vehicle and a pigment. The vehicle consists of mineral, animal, or vegetable oils and sometimes a liquid wax such as sperm oil. The most important pigment is carbon black.

The grade of carbon black used for ribbon ink is called long flow, which means that a large quantity can be mixed with a vehicle without getting a stiff ink to get better penetration in the ribbon fabric. Carbon black is not jet black; so a dissolved dye or dye lake of blue or violet color is added to get the desired colors.

Single-color ribbons have inks the same as black ribbons, but the dye lakes are used in lieu of carbon black. Special inks are used for ribbons of half black and half red so there will be no color bleeding.

Many typewriter-ribbon manufacturers design and make their own inking machines, as they are designed for specific fabrics and ink formulas. One type of machine has a series of rolls that distribute the desired quantity of ink over the fabric. Another inking machine applies a large quantity of ink and then a roller squeezes the excess ink out of the fabric.

Selvage ribbons are in long lengths and are inked by a machine and later cut in 12-yd. lengths for individual spools. Degrees of inking are light, medium, and heavy. These degrees are difficult to attain because the variables in uneven yarns and weave constructions absorb different amounts of ink.

Waterglass Stiffens Simplex Fabrics

Technical Editor:

What is the action of waterglass in finishing Simplex glove fabrics? What type of milling machine is used for Simplex fabrics? (9888)

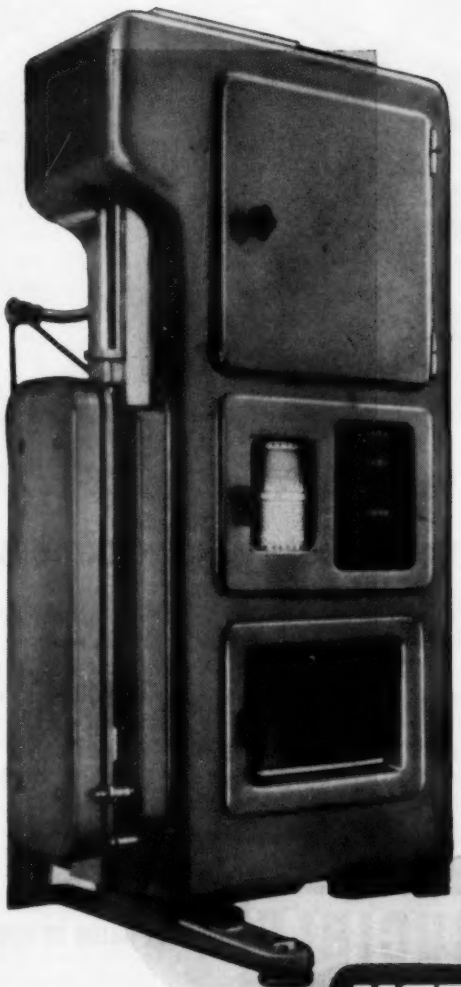
Waterglass gives a slight stiffening and weighting of the material. A very fine film is created on the surface of the cotton fibers.

To insure a thorough penetration of caustic-soda solution into Simplex fabric, you can use a padder. A jig will also do this job, but see that the fabric is not under tension. This machine insures an even distribution of the solution without brightening the material.

Make sure that the fabric has a uniform dampness of 30 to 40% before the treatment. The caustic-soda impregnation must also be uniform. Do not fold, and treat the fabric without tension.

USTER AUTOMATIC YARN STRENGTH TESTER

makes single strand tests practical



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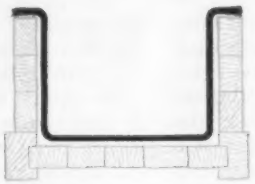


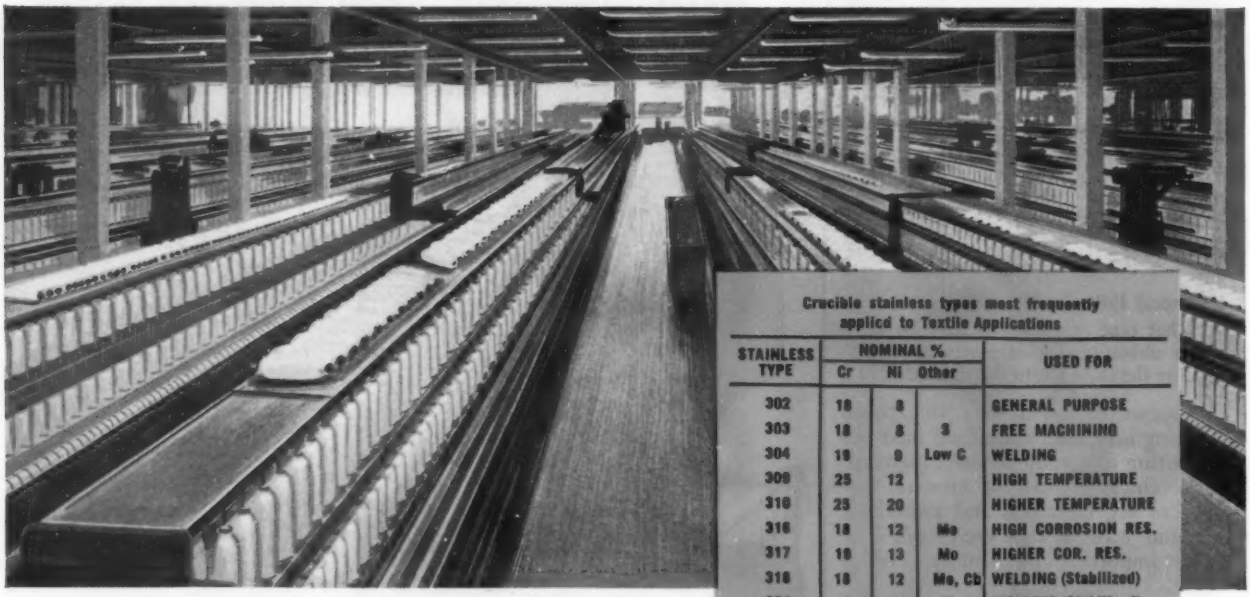
Stainless steel was first used by textile mills as linings for dye vats. It reduced maintenance and boiling-out time so much that . . .

. . . by the middle thirties, it was used in all kinds of related equipment. And in kiers and other equipment, where strength and cleaning ease were as important as corrosion resistance, stainless found wide use. And now . . .

1935

1955

. . . stainless steel cuts costs in everything from dye house to loom — in finishing, fabric preparation, weaving, knitting, yarn preparation and manufacture.



Crucible stainless types most frequently applied to Textile Applications

STAINLESS TYPE	NOMINAL % Cr	Ni	Other	USED FOR
302	18	8		GENERAL PURPOSE
303	18	8	S	FREE MACHINING
304	18	8	Low C	WELDING
309	25	12		HIGH TEMPERATURE
310	25	20		HIGHER TEMPERATURE
316	18	12	Mo	HIGH CORROSION RES.
317	18	13	Mo	HIGHER COR. RES.
318	18	12	Mo, Cb	WELDING (Stabilized)
321	18	8	Ti	WELDING (Stabilized)
347	18	8	Cb	WELDING (Stabilized)

for tomorrow, too, see why no material can cut your costs like stainless steel

Stainless steel offsets *brutally-hard usage* with exceptional toughness and strength . . . combats *biting dyes and acids* with remarkable cleanability and corrosion resistance . . . prevents *metallic pickup* through its chemical inertness in the dye vat — here again with corrosion resistance. That's why stainless steel is no luxury metal, but *the least expensive material you can buy.*

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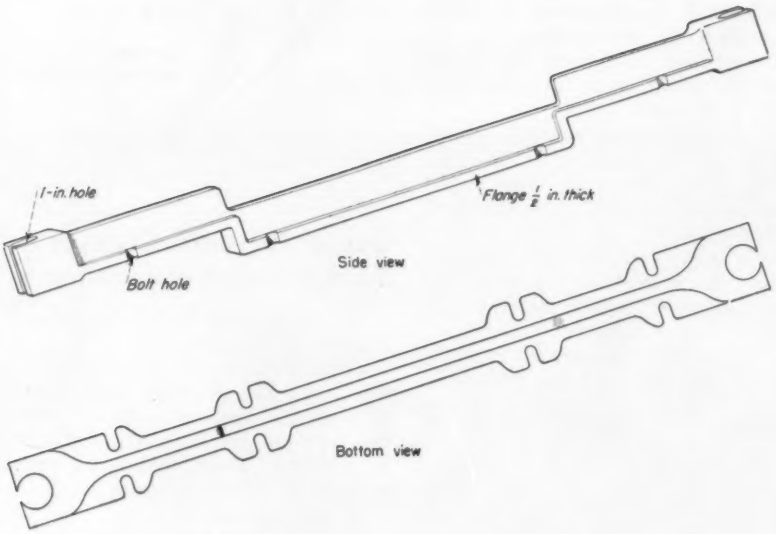
KINKS AND SHORT CUTS

KINKS and SHORT-CUTS



Raise Roller Beams for Larger Spinning Packages

Here's how we changed over from 8- to 10-in. bobbins on our H&B spinning frames.

First we decided that it was better to raise the roller beam than to lower the base rail.

Secret of our change-over is a spacer cast to fit the top of the samson. We had to take one samson off to get the first one made just right.

To install the spacer, we jack up the roller beam at each samson and slip the spacer in. Longer bolts have to be used in reassembling the frame.

Then we raise the head and foot ends of the frame the thickness of the spacer.

Samson spacer is cast to fit the top of each samson. This drawing is to scale, and you can take measurements from it directly if you have this model of H&B frames. Traverse was increased 2 ins.

Production is higher now, and costs are lower. (K-2497) *J. B. Boyter, Dillon, S. C.*

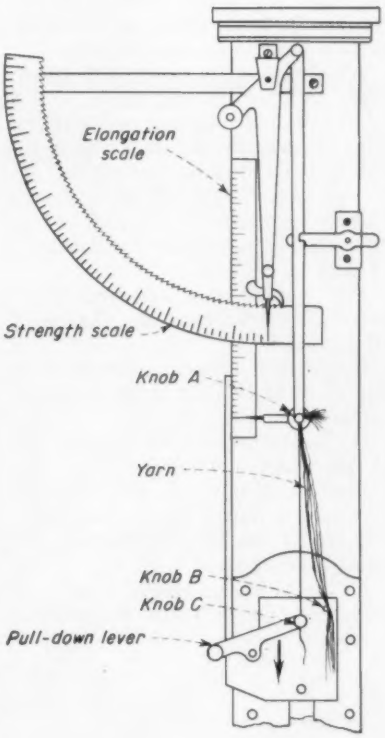
Insert Cylinder Spacers To Knit Wool Cloth

When we changed our circular jersey machines from cotton and rayon yarns to wool yarns, we slackened the stitch by lowering the stitch cams.

We saved time by having distance pieces made to fit under the cylinder, and we found that this practice does not wear the cams as much as the old method.

The four cylinder-retaining screws that lock the cylinders and gear ring are slackened; and the distance pieces, or shims, are inserted between the cylinder and the frame near the screws. The screws are then tightened.

When the thickness of the shims is decided upon to give the correct quality of fabric, they are kept with the machine. When we revert to the original fabric, little time is lost in the changeover, for we don't have to line up the feeds. (K-2769)



Save Testing Time

In our rayon mill, we formerly made tests for yarn strength and elongation one thread at a time. This method was tedious and time consuming. It took about 12 mins. to test 10 threads individually.

We found a way to reduce testing time by attaching simultaneously to knob *A* all the ends to be broken. The loose ends are looped over pin *B* to keep them out of the way. These ends are then broken one at a time by inserting them in knob *C*.

Cutting out extra handling of individual threads has reduced our testing time by more than 30%. (K-2712) *Hokayo, Fukaya, Japan*

Substitute Pipe for Spring To Reduce Break-outs

Every time the shuttle banged off in the shed of the warp on our W-3 looms, we used to have a break-out or smash the entire length of the shuttle.

The shuttle would always be forced through the top shed of the warp since, on our particular weave, the top shed had fewer harnesses and warp ends than the bottom shed.

The yarn used in the warp is 20s; two harnesses are always up and six are always down. The pattern is a four-bar repeat.

Wool filling (1⅜ run) is used in the weave and packed in 48 picks to the inch to form a very heavy weave used for automobile upholstery.

We also weave worsteds with rayon mixed with the worsted warps.

To reduce the number and severity of the break-outs, we used a pipe to replace the spring on the plunger in the protector knock-off lever stand. The pipe is the same diameter as the spring and ⅛ in. shorter (total length 1⅜ ins.).

The springs were removed from both ends of the loom and the pipes substituted.

Here's what happens when a loom bangs off when springs are used on the plunger:

1. The springs on the plunger are 1¾ ins. long, normally. When the springs are compressed at a bang-off (the wire is only ⅛ in. in diameter), they are 1¼ ins. long. Therefore, the spring is compressed ½ in.

2. The ½-in. compression of the springs is enough to let the shuttle move forward ½ in. through the warp and cause break-outs.

Here's what happens when a loom bangs off when pipes are used on the plunger:

1. The pipes can't compress when the protector-rod dagger strikes the knock-off lever.

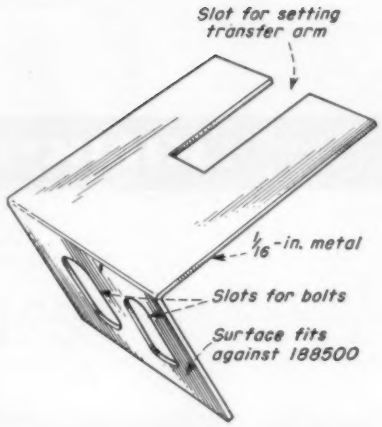
2. The two springs on each of the two crank connectors (normally 6½ ins. long) are compressed to 4¼ ins. These four springs absorb all the shock, and the lay moves backward and moves the shuttle away from the warp in place of forcing the shuttle into the warp, as is the case when springs are used.

3. Since the crank-connector springs absorb all the shock of the bang-off, there is no chance of breaking lay swords, the knock-off lever stand, or the breastbeam.

We have been running our looms with pipes substituted for springs 24 hrs. a day for the last nine months without any loom-parts breakage.

This new setup has eliminated 90% of our break-outs and has resulted in labor savings, higher production, and increased cloth quality. *John W. Lewkowicz, Brockton, Mass.*

[Our experience in weaving leads us to believe that the use of the pipe in place of the regular plunger spring may break lay swords, the knock-off lever stand, and the breastbeam and perhaps damage the loom generally. We checked with Mr. Lewkowicz, and he said he has had excellent results.—EDITOR]



Guard Prevents Damage To S-6 Loom Magazines

When the magazines on Crompton & Knowles S-6 looms are filled with bobbins of filling all the way to the top, a bobbin of filling often drops between the magazine cells and into the loom as the magazine oscillates for a filling transfer. Also, the magazine hand sometimes drops a bobbin of filling between the cells.

These dropped bobbins hang in the moving lay end or shuttle box and cause warp smashes. They also break the magazine parts.

To eliminate this damage, we made small metal guards to catch the dropped bobbins. The guards are made from ⅛-in.-thick metal wide enough to cover the slotted side of the support for the thread brush (Catalog Part No. 188500).

One end of the metal is slotted to match the slots in the support for the thread brush. The metal is then bent to a 90° angle so that it covers the magazine section over the transfer arm (hammer). A slot is cut in the free end of the guard so that loomfixers can check the settings of the transfer arm. We bolt the guards to the support for the thread brush with the same bolts used to hold the front and back brush holders.

Now, dropped bobbins lodge on the guard and stay there until a magazine hand removes them.

The guards are cheap because they can be made from scrap metal; they're made easily and quickly in our mill machine shop; and they stay on the loom without any further adjustments. (K-2666) *Charles R. Batzer, Lancaster, Pa.*

Cabinet for Samples Requires Little Space

We dye up to 5,000 different shades in our dyehouse. Currently, we are running some 1,000 different colors. Matching these numerous shades to standard is quite a problem. As a matter of fact, until recently we employed Du Pont to do our color matching.

When we decided to handle the job ourselves, another problem was presented: Where would we keep our 5,000 standard samples?

The answer was to build a cabinet in our laboratory, where most of the matching is done. Here we keep samples of our most popular colors. As can be seen from the photograph, the cabinet is built with numerous panels that fold flat and require little room. There is storage space in the bottom of the cabinet.

Similar cabinets have been built in other areas to accommodate the less-popular samples. Each panel is indexed so that we can find the color we desire in a hurry. (K-2774) *Valdese Mfg. Co., Valdese, N. C.*

KINKS AND SHORT CUTS

Why we DON'T let the chips fall where they may!

Casting an "eagle eye" on the wood chips used in making Buckeye High Alpha Cellulose is a vital—and full-time—job for this member of our production team. Because he makes certain that chips of the right size flow into our 60-ton digesters, you're assured a perfectly uniform cellulose product.

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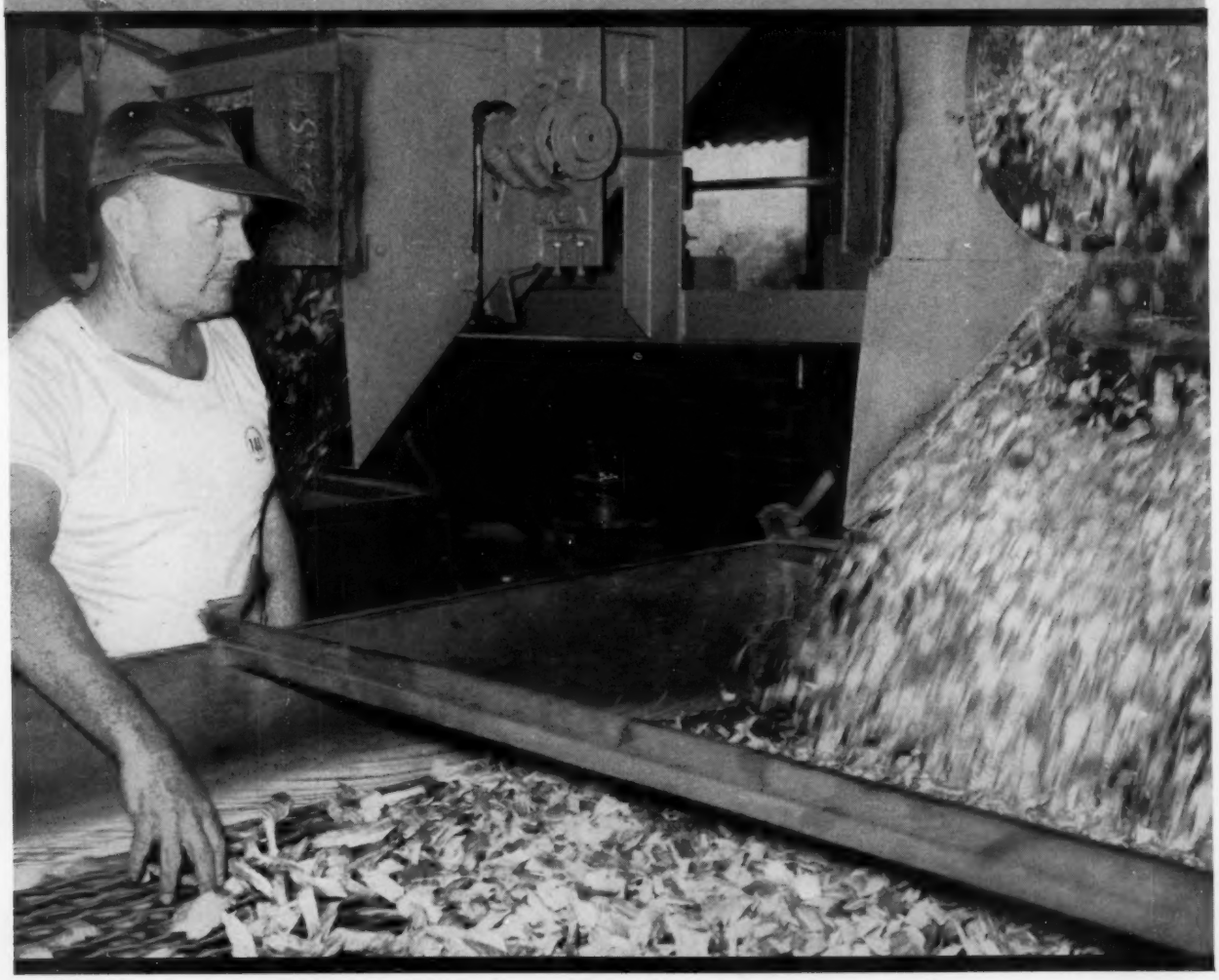

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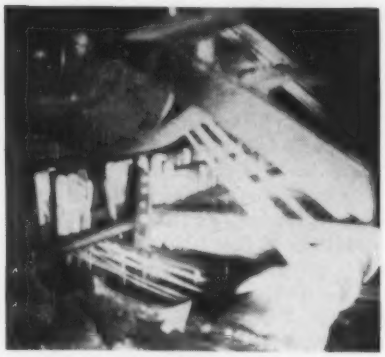

Draw-Cord Stop Motions Prevent Damaged Shuttles

Knots in the draw cords in our bagging fabrics often hang in the drop wires at the loom stop motion and cause the cords to tighten. The tight cords throw the shuttle out of the loom and sometimes break the shuttle. Even when the knots pass through the drop wires, they usually damage the shuttle or woven cloth.

We now use a draw-cord knot catcher to stop the loom when a knot comes up in the cord.

The knot catcher is made by welding two pieces of flat iron together to form a T-bracket. The bottom section of the bracket is made from ¾x¼-in. flat iron with six ¼-in. holes drilled in it.

The top section of the T-bracket is also made from ¾x¼-in. flat iron and is welded to the bottom section. A stand, made from the same material mounted to the back top loom girder, has six ¼-in. holes bored in the free end to hold the T-bracket; the six holes in the stand and the T-bracket are for adjusting the bracket.

The T-bracket is mounted to the stand just back of the sliding-bar stop motion. The top section of the bracket is adjusted so that it's level with the drop wires.

A No. 11 piano wire is fastened to the back of the bracket top with a small spring. A loop is made in the piano wire at the spring, and the draw cord is threaded through the loop.

The other end of the top bracket has a notched section cut out ¾ in. long and 1/16 in. wide. The notched section slides under the back sliding bar in the stop motion. The draw cord is threaded through a drop wire on the second-from-the-back bar of the stop motion.

When a knot comes up in the draw cord, three actions take place: (1) the knot hangs in the loop of the wire, (2) the knot stretches the spring as the draw cord is woven into the cloth, and (3) the wire loop moves the drop wire to stop the loom.

The weaver removes the knot and restarts the loom without damage to any part of the loom or cloth.

The device works well on both mechanical and electrical warp stop motions. (K-2736) *Ralph A. Blough, Goshen, Ind.*

Stop Funnel Overflow

Often, when an opaque container is being filled through a funnel, the liquid overflows and backs up into the funnel. This overflow can be prevented by jabbing a cork into the neck of the funnel before lifting the funnel from the container. Put a cork on a piece of wire, as illustrated, and tie it to the funnel, where it will be handy at all times. (K-2728) *Charles H. Willey, Penacook, N. H.*

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Send in your Kink now. There is always a contest going on.

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We like ideas for improving machines, new devices that a mill man can build, attachments or methods of merit—anything that will cut costs, improve quality, or help production.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1955.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 200 will be asked to select preferred Kinks in each issue. Their votes will select the best Kink, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
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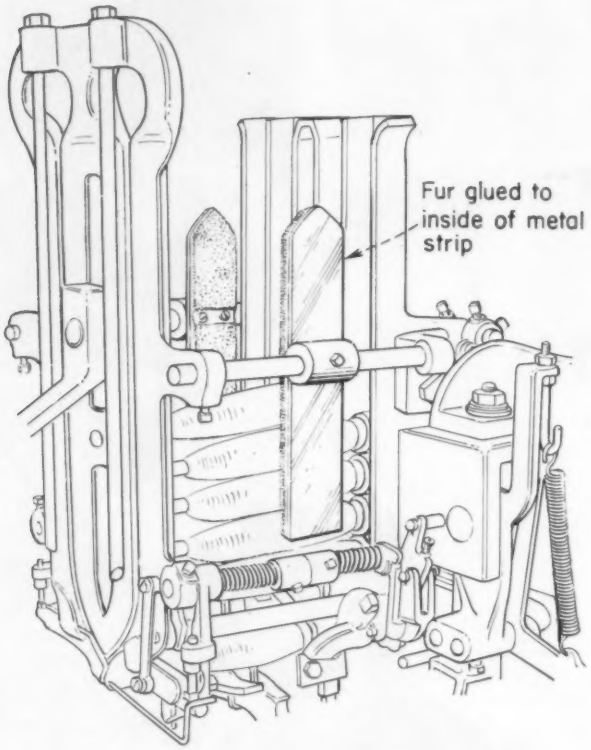


We Stopped Filling From Turning in Our Magazines

When we made loom-stoppage checks in our weave room recently, we found that we were having excessive filling breaks on the transfer on C-4 and W-3 looms. We set our magazines correctly but still had too many breaks.

We saw that the vibration of the looms was causing the bobbins of filling in the magazines to turn and decided to stop the bobbins from turning to see what effect the turning had on filling breakage.

We made collars to fit the lengthwise rods in the magazine; each collar has a setscrew hole and a capscrew hole. We cut several strips from heavy-gauge sheet metal, paddle-shaped and long enough to cover all of the bobbins in the magazine.

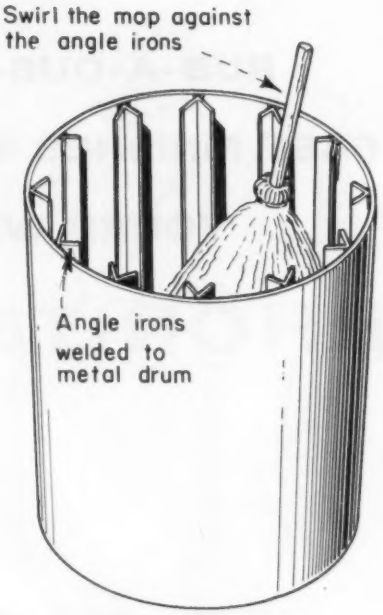
Pieces of leather were cut to fit the large part of the metal and were riveted to the metal with the smooth side of the leather against the metal. The flesh side of the leather was roughened, and either fur or sheepskin was glued to the leather.

The collars were put on the magazine rods, and the metal strips were fastened to the collar with capscrews through holes in the strips.

The setscrews in the collars were adjusted with the fur or sheepskin just against the bobbins of filling. We had to adjust the setscrews carefully to prevent the sheepskin from being too tight against the bobbins. When the sheepskin was set too close to the bobbins, the bobbins would not fall.

The stopping of bobbin turning reduced the filling breaks on the transfer so much that we put the new device on all of our looms.

We now have little filling breakage and do not work on the magazines as much as we used to. (K-2787) *Bernard Dixon, Danville, Va.*



How To Clean Mops

In our twisting department, we formerly had a lot of trouble with the wax- and emulsion-saturated waste; it sticks to the floor. The automatic floor sweeper could not blow it away as it does the dry waste.

The cleaning hands use an ordinary mop to push this waste to the alley at the end of the frame, and there they shake the waste from the mop into a container. This shaking causes a lot of waste to fly into the air and fall into the work.

We finally solved the problem by welding some pieces of 1-in. angle iron into the inside perimeter of metal drums used to collect the waste. The cleaners now knock the waste from their mops by swinging them around inside the drum against the angle iron instead of beating the sides of the drum. The waste no longer flies through the air into the work. (K-2773) *Valdese Mfg. Co., Valdese, N. C.*

Side-Lift Truck Aids in Storing Beams

Formerly, our mill made tire cord exclusively, but some years ago we diversified our operations. One of the changes was the installation of a number of looms.

The room we turned into a weave shed was large enough to hold all the looms, but not large enough to afford a special section for beam storage.

We built racks along one wall to hold the beams, which worked fine except there was not enough space left in the alley to permit operation of a conventional lift truck. This problem was solved by having a special narrow truck built that lifts sideways. It works fine. (K-2763) *U. S. Rubber Co., Winnsboro, S. C.*

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GROOVED EYELETS with Wire Retainer Clips

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- FORMS CONDUCTIVE PATH NOT INSULATED WITH CEMENT
- CONDUCTIVE GUIDE PLUS CONDUCTIVE CLIP HELPS CONTROL STATIC
- HARD MATERIAL NOTED FOR EXTRA LONG LIFE

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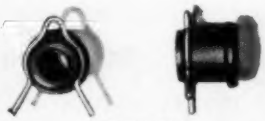

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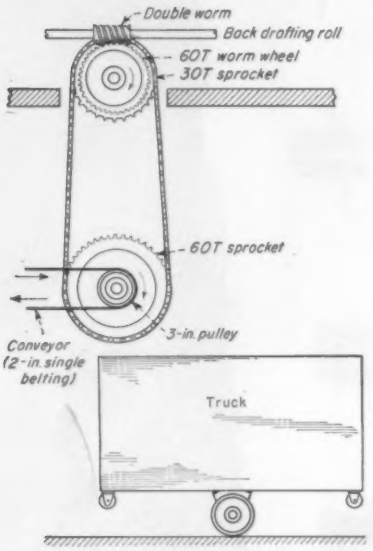


Empty Speeder Bobbins Handled by Conveyor

We've made a conveyor to carry our empty speeder bobbins to a box at the end of each frame.

It's a simple belt conveyor that runs over the top of the shelf or tray at the bottom back of the creel. We drive it from the back roll, as shown in the diagram.

The bobbin box is placed at the delivery end of the conveyor, which is at the foot end of the frame.

This conveyor system relieves our speeder tenders of a lot of work. Now they don't have to bother with the empty bobbins. (K-2743) *Walter Watts, Charlotte, N. C.*

Best-Kink Award for September

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 200 practical mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

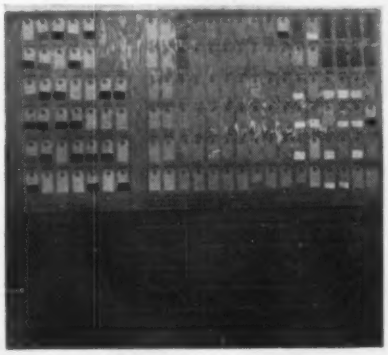
If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answer in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

The best Kink for September, according to TEXTILE WORLD reader-judges, was:

"Stop Loom Bang-Offs With a Harness Wire"

By Ed. Van Bergen, Hazletown, Pa.

Mr. Van Bergen is being sent a check for $25 with the compliments of TEXTILE WORLD.



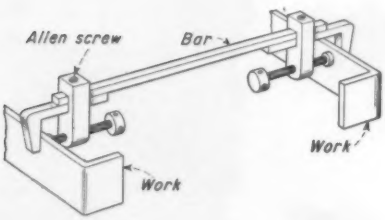
Use a Scheduling Board To Lay Up Filling Faster

Keeping track of the many kinds of filling in the weave room of our mill is a big job. We have over 1,800 looms divided into 10 types or widths. We run several numbers of spun-rayon and carded- and combed-cotton yarns. With this big assortment of filling yarns to keep straight, we used to have mixed filling frequently.

Now we're using filling-scheduling boards that are practically eliminating all mixed filling. The boards are mounted throughout the weave room. There's one board for each filling hauler's group of looms. Each board has a hook to hold a ticket for each loom on the filling hauler's job. The loom number is written over the ticket. The board is marked off similar to the way in which the looms are placed on the weave-room floor.

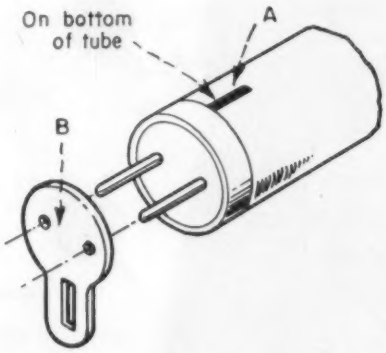
The style of cloth being woven on each loom is listed on the ticket. The filling yarn number is also listed. White tickets are used for looms in production. Red tickets are used to show looms currently running sample fabrics. Blue tickets are posted for looms where the filling is to be changed at cut marks or warp-outs.

The filling haulers order filling for their entire jobs by simply checking the scheduling board. This system eliminates a lot of walking over the job to check each loom for the type of filling being run. Now the haulers have more time to lay up filling, and their work is easier.



Bar Clamps Aid Welding

The illustrated bar clamps are easy to make and are helpful in positioning work that is being welded or assembled. The clamps can be turned in any position on the bar to meet the requirements of the job. To use them as a single clamp, loosen the Allen screws, remove the clamps, and substitute a block for the bar. (K-2727) *Charles H. Willey, Penacook, N. H.*



How To Protect Fluorescent Tubes

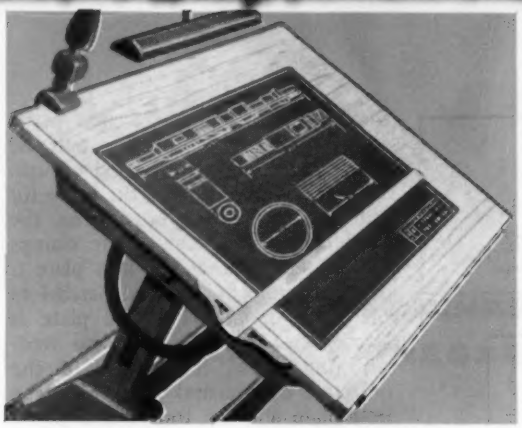
Here is a procedure for keeping fluorescent-light tubes in place:

Before the tubes are installed, make a mark at *A* about 1 in. long with a grease pencil or paint halfway between the prongs. Marking with a template allows speed and accuracy.

By aligning the mark with the slot in the socket, the maintenance man can visually check the proper installation of the tube. The mark also allows maintenance men to periodically check the tubes from the floor to see if the tubes are properly seated.

Another version of the same idea is accomplished by using a fiber tab, as shown at *B*, sold as part of a tube-locking device. The tab, installed on the prongs at one end of the tube, hangs down and aligns with the slot in the socket when the tube is properly seated. (K-2780) *National Safety Council*

KINKS AND SHORT-CUTS



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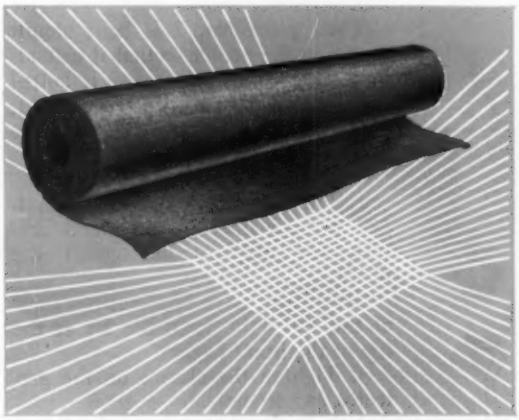

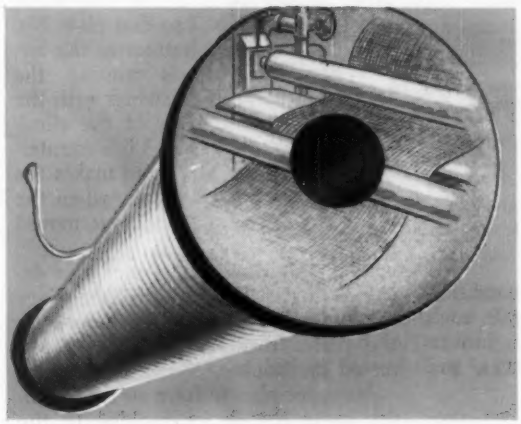

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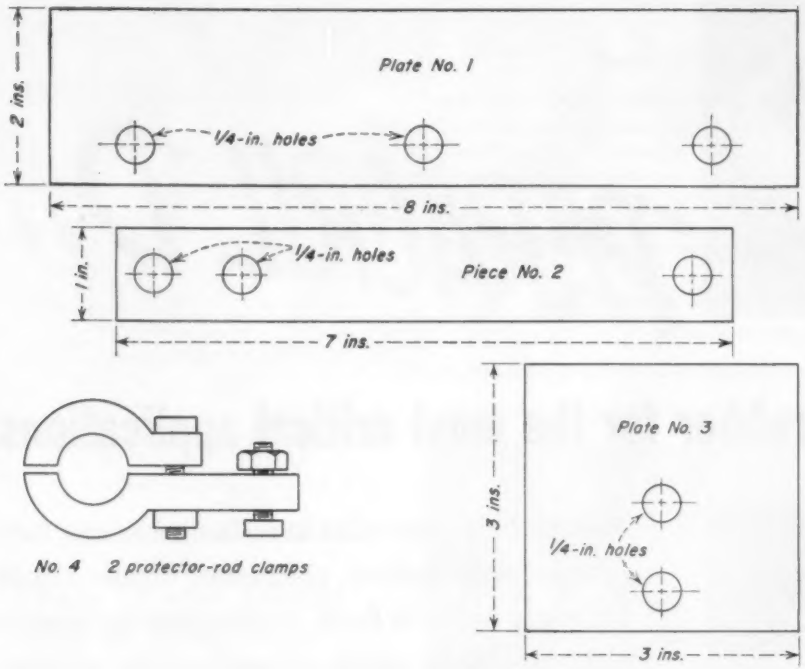

FIG. 1

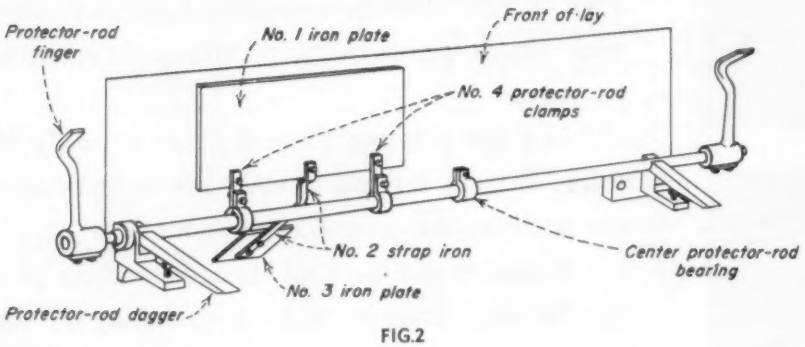

FIG.2

Protector-Motion Device Stops Unnecessary Wear

We have a lot of trouble with our protector motions on Crompton & Knowles W-3 looms. The protector-rod spring wears itself into two parts where it contacts the bottom of the lay. When the spring breaks off, we can stretch the end out and use the spring again for a couple of times; but then we have to remove the protector-rod from the loom to replace the spring.

To put on a new spring, we have to cut the rod into two pieces and it's hard to put the rod together again. The spring also wears the protector rod so that the rod has to be replaced. All this trouble causes a lot of work and a loss of loom-running time.

A protector rod in bad condition also causes other loom trouble such as (1) warp smashes, (2) broken picker sticks, (3) burst shuttles, and (4) broken magazine parts.

To stop all these troubles, we completely eliminated the protector-rod spring. To replace the spring, we made a little device that works pendulum-fashion from the rocking action of the loom lay.

The device is made from these materials:

1. One piece of flat iron ½x2x8 ins.
2. One piece of strap iron ¼x1x7 ins.
3. One piece of flat iron ½x3x3 ins.
4. Two protector-rod clamps.

To make the device, we first bore three holes in the No. 1 iron plate, as shown in Fig. 1. Then we bolt the iron to the two protector-rod clamps. We fasten the clamps to the protector rod near the center bearing on the head end of the loom. The clamps are fastened so that the iron plate is over the protector rod and parallel to the front of the lay. The plate is located just inside the second reed-adjusting screw. The heads of the bolts are countersunk flush with the iron plate and are toward the lay.

Strap-iron piece No. 2, shown in Fig. 1, is bolted to piece No. 1 through the single hole in the end of piece No. 2 and through the center hole in piece No. 1. Piece No. 2 is offset where it is bolted to piece No. 1 so that it goes back of the protector rod.

Then piece No. 2 is bent almost square in the center so that it extends under the lay. Piece No. 3 is bolted to piece No. 2 on the side with No. 1, as shown in Fig. 2. All parts are bolted together with ¼-in. bolts.

To set the device, we:

1. Pull the shuttle out of the shuttle box and hold the head-end protector-rod finger tight against the binder.
2. Set iron piece No. 1 at the front of the lay ⅛ in. from the lay at the top of the iron.
3. Tighten the clamps on the protector rod securely.
4. Pull the protector-rod dagger down against the head-end stop screw and bend iron No. 2 so that plate No. 3 is ⅜ in. from the bottom of the lay.

When the loom is running, the large iron piece No. 1 swings with the lay and takes the place of the eliminated spring. Plate No. 3 is a counterbalance for plate No. 1 and makes the protector rod work correctly when the loom is stopped or the lay is moved slowly.

The only disadvantages of this device is that a few bolts broke. Since the bolts broke, we've been welding the plates together, which has corrected the trouble.

Now, we plan to have an iron foundry make the device molded to the protector-rod clamps all in one piece. We will have one device for each of our looms.

The advantages of the device are: (1) it does not wear and does not wear any part of the loom, (2) it prevents the protector-rod dagger from hitting and cutting the tube on the shipper shaft, and (3) only 10 mins. are required to put on the device and set it up. (K-2684) *Lartie B. Kea, Dublin, Ga.*

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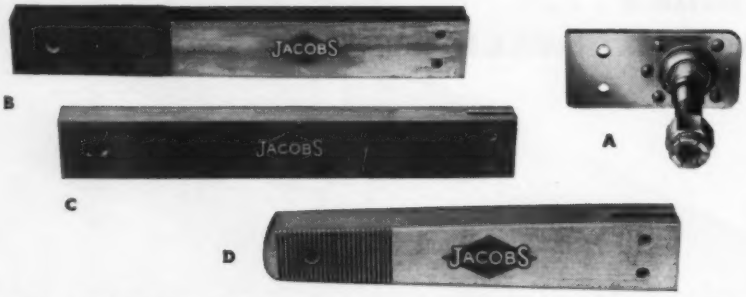

B

C

D

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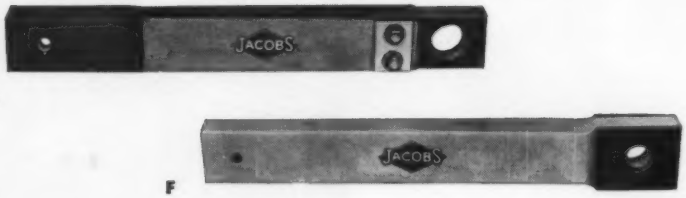

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F

E. RUBBERWELD (with plastic head)

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F. REINFORCED CANVAS

High quality Army Duck reinforced by plastic blocks on each side of stud hole for long wear.

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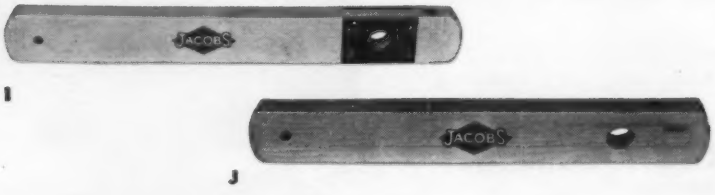

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. November, 1955

NEW LITERATURE Continued

Outstanding NEW LITERATURE *Free for the Asking*

NO REPEATS . . . Listed here for November are current bulletins reviewed bythe editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

AUXILIARY EQUIPMENT

Dozens counter—For hosiery mills at inspection, doffing, or knitting machines. Indicates dozens of pairs up to 100 at 250 counts per minute. Veeder-Root, Inc. (F-1)

D.c. motors—Dynamic-response-type for rapid acceleration and deceleration. 7½ to 250 hp. Bulletin C-2002. Reliance Electric & Engineering Co. (F-2)

Lubricating system — Centralized, measured lubrication to bearings difficult to reach. Bulletin No. 16. Farval Corp. (F-3)

Fiber-fineness indicator—For checking fiber diameter, immaturity. Direct reading, precise instrument. Special Instruments Laboratory, Inc. (F-4)

Cloth-slippage tester—For determining slippage of warp over weft, or vice versa. Duplicatable results. Aldo Milanese. (F-5)

Pressure recorders—For many textile purposes. New pressure elements. Bulletin C-10. Foxboro Co. (F-6)

Limit switches—For limiting motion of machine components. Snap action. Various capacities. Cat. 62. Minneapolis-Honeywell Regulator Co., Micro Switch Div. (F-7)

Twist tester—For all yarns. Foot switch, improved head, motor-driven. U. S. Testing Co. (F-8)

Conditioning oven—For moisture determination of all fibers. Built-in scale, automatic heat controls. Emerson Apparatus Co. (F-9)

Abrasion tester—For dry or wet abrasion tests. Improved principles of operation more nearly approach actual service conditions. Atlas Electric Devices Co. (F-10)

Yarn stop motion—For roving frames. Automatic time-delay factor. Adams, Inc. (F-11)

Mending machine—For repairing seconds in full-fashioned or seamless hose. Air-operated. Stanford Morley Dist. Co. (F-12)

Magnetic clutches—For textile drives, motors. Also brakes. Bulletin 226-D. Stearns Magnetic, Inc. (F-13)

Portable potentiometer—For on-the-job electrical or temperature measurements, accurate to 0.025 millivolts. Bulletin F-5760-1. Wheelco Instruments Div., Barber-Colman Co. (F-14)

pH meter—Line-operated laboratory or plant machine. Direct-reading, temperature-compensated. Bulletin 105. Photovolt Corp. (F-15)

Evener control—For two- or three-beater pickers. Produces even laps by controlling hopper feed. J. A. Quinn & Sons. (F-16)

Multibelt drives—For machines, prime movers. V-belt effect with unitized construction. Cat. PV-200-A. Browning Mfg. Co. (F-17)

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NEW LITERATURE Continued

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. November, 1955

NEW LITERATURE Continued

Automatic moisture controller—For slasher, tenter, picker-lap control. Strandberg Engineering Laboratories, Inc. (F-18)

Thread guides—For many textile machines, in many shapes and sizes. Bulletin 541. American Lava Corp. (F-19)

Lint-free creel—For spinning frames. Airfoil design prevents lint accumulation, reduces cleaning time. Pneumafil Corp. (F-20)

SUPPLIES & CHEMICALS

Fat specifications chart—Handy guide to characteristics of several fatty acids in slide-chart form. Wilson-Martin Div., Wilson & Co. (F-21)

Soda-ash storage—Methods of handling in slurry form. Advantages described in brochure from Diamond Alkali Co. (F-22)

Surface-active agents—General-purpose amine condensates for textile processing. Folder 200. Mona Industries, Inc., Chemical Div. (F-23)

Socket screws—Full line of socket screws of many types described in Bulletins 898 and 899. Bristol Co., Socket Screw Div. (F-24)

Specialized lubricants—For specific purposes, including ball and roller bearings, gears, speed reducers. Bulletin BK-19. Keystone Lubricating Co. (F-25)

Unusual chemicals—Organic and inorganic chemicals for laboratory work. Dajac Laboratories, Chemical Div., The Borden Co. (F-26)

Jack-shaft bearings—Ball-bearing jack shafts, prelubricated and self-aligning. Precision Gear & Machine Co. (F-27)

Harness sheaves—Ball-bearing loom-harness sheaves. Prelubricated, fit standard shafts. Precision Gear & Machine Co. (F-28)

Paper tubes—For textile-yarn packaging. Spiral, convolute, parallel, drawn, in various sizes. Sonoco Products Co. (F-29)

Industrial tapes—For masking, package sealing, insulating, silk-screen work. Fabric base. Hampton Mfg. Co. (F-30)

ENGINEERING & MAINTENANCE

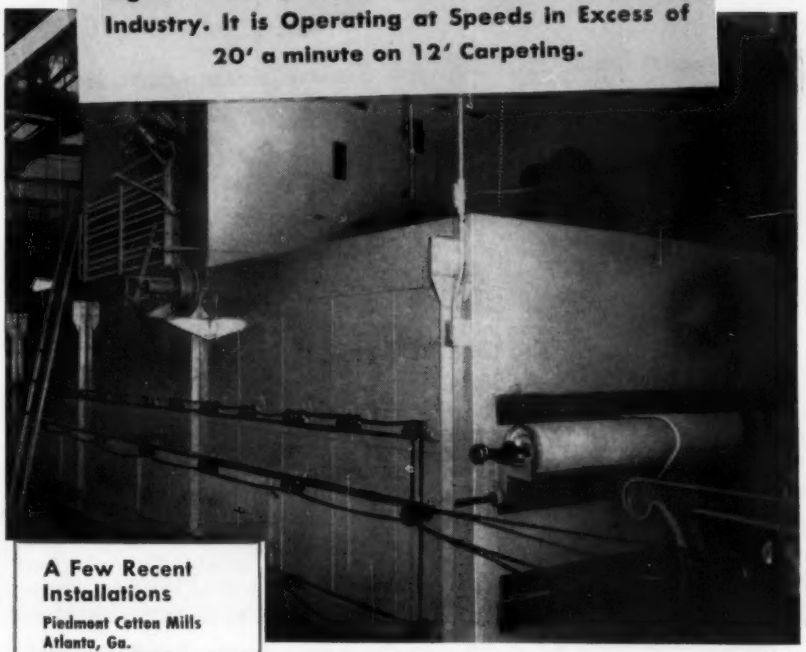
Automatic filters—For ventilation systems. Intermittent cleaning cycle. Two filter curtains. Bulletin 500. Dollinger Corp. (F-31)

FIRST . . . FOR DRYING and CURING

ROSS

OVENS FOR TUFTED TEXTILES

One of the First Gas-Fired Three-Pass Latex Drying and Curing Ovens Furnished in the Tufted Industry. It is Operating at Speeds in Excess of 20' a minute on 12' Carpeting.



A Few Recent Installations

Piedmont Cotton Mills
Atlanta, Ga.
Latex Drying & Curing Unit

Katherine Rug Mills
Dalton, Ga.
Latex Drying & Curing Unit

Dalton Carpet Coating Co.
Dalton, Ga.
Latex Drying & Curing Oven

Dalton Carpet Finishing Co.
Dalton, Ga.
Festoon Dryer for Carpeting

Calloway Mills
LaGrange, Ga.
Latex Drying & Curing Oven and Wet Rug Dryer

Alexander Smith
Cartersville, Ga.
Combination Latex Drying & Curing Oven and Wet Rug Dryer

3 TYPES OF ROSS OVENS AVAILABLE

There are ROSS Ovens of various types—for curing latex rug backing; for drying carpet after dyeing and for loop drying after rugs have been dyed and washed. For any drying or curing problem in connection with Tufted Textiles—consult ROSS.

Write For Our Bulletin No. 31-W

J. O. ROSS ENGINEERING CORPORATION

ATLANTA, GA.—3158 Maple Drive, N.E. BOSTON, MASS.—79 Milk Street
CHICAGO, ILL.—201 North Wells Street NEW YORK, N. Y.—444 Madison Avenue
Detroit Los Angeles Seattle

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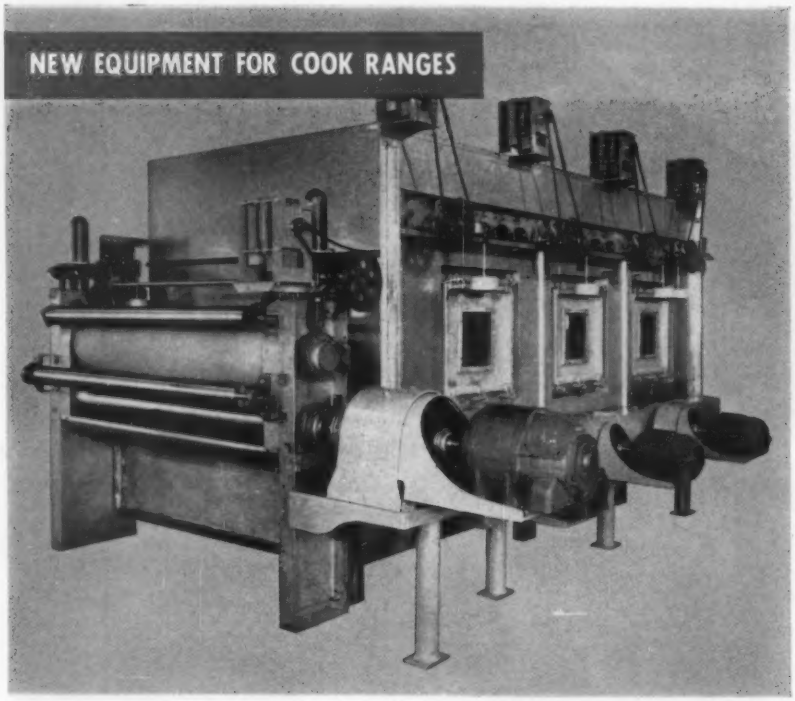
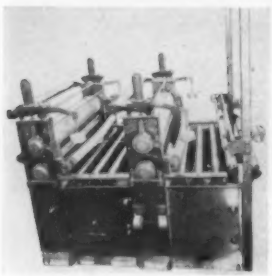
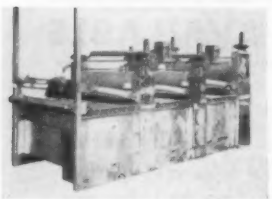


Continuous open-width desizing at 100 yards per minute

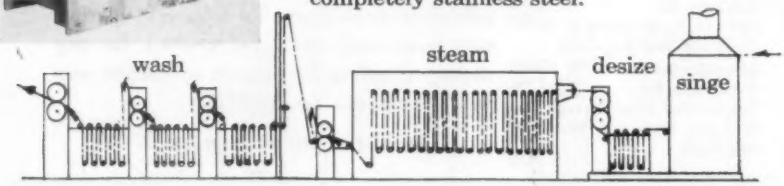


Twills, gabardines, etc., are safely handled without wrinkling in this new desizing range. *Only* the Cook patented automatic tension-controlled steamer now makes it practical to do this job continuously. The complete range includes a roll feed, singer, desize saturator, continuous steamer and washer.



The new enzyme saturator has 2 compartments and 2 sets of squeeze rolls. The solution is recirculated and screened to maintain uniformity and freedom from lint. Automatic controls maintain solution strength.

The new enzyme washer is designed to utilize a new principle of counterflowing the washwater. Better washing is obtained with less water used. All these machines are completely stainless steel.



FINISHING, DYEING, BLEACHING, MERCERIZING, OPENING & WASHING RANGES

Cook COOK-P&N MACHINE CO., INC.

365 DORCHESTER AVE., BOSTON 27 - CABLE COOKPAN

NEW LITERATURE Continued

Absorption refrigerating machines—Suitable for plants, buildings. Steam-operated, water-cooled. Carrier Corp. (F-32)

Fans—For ventilating, boiler draft. Direct-coupled, belt-driven. Bulletin F-100. Buffalo Forge Co. (F-33)

Revolving joints—For cans, slashers. Single-flow, syphon, and revolving-syphon types. Cat. 300-A (Rev.). Barco Mfg. Co. (F-34)

Sealless pumps—For difficult pumping problems. Motor and pump in one unit. Liquid surrounds rotor. Chempump Corp. (F-35)

Structural material—In sheet form. Fireproof, waterproof; has insulating value. Three densities for various purposes. Johns-Manville. (F-36)

Quick couplings—For air- or fluid-handling purposes. Automatic valve action. Breco Mfg. Co., Inc. (F-37)

Rotary pumps—For liquids, slurries, gases. Furnished for corrosive conditions in suitable alloys. Hinckley Corp. (F-38)

Globe valves—For handling chemicals. Special alloys, Teflon seals for long life. Bulletin H-2. La Bour Co., Inc. (F-39)

Industrial luminaires—With two-way light transmission, porcelain-enameled reflecting surfaces, up to 8 ft. long. F. W. Wakefield Brass Co. (F-40)

GENERAL

Industrial trucks—Complete range of gas- and electric-powered trucks described in Bulletin 54B. Baker-Raulang Co. (F-41)

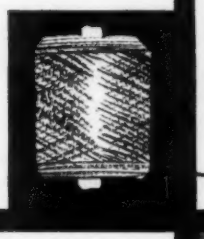
Soda ash—History, manufacture, uses, and analytical procedures in a book from Wyandotte Chemicals Corp. (F-42)

Cross-file card units—For easy filing. Three sizes; 6- and 8-drawer units. Compact, high card capacity. Remington Rand (F-43)

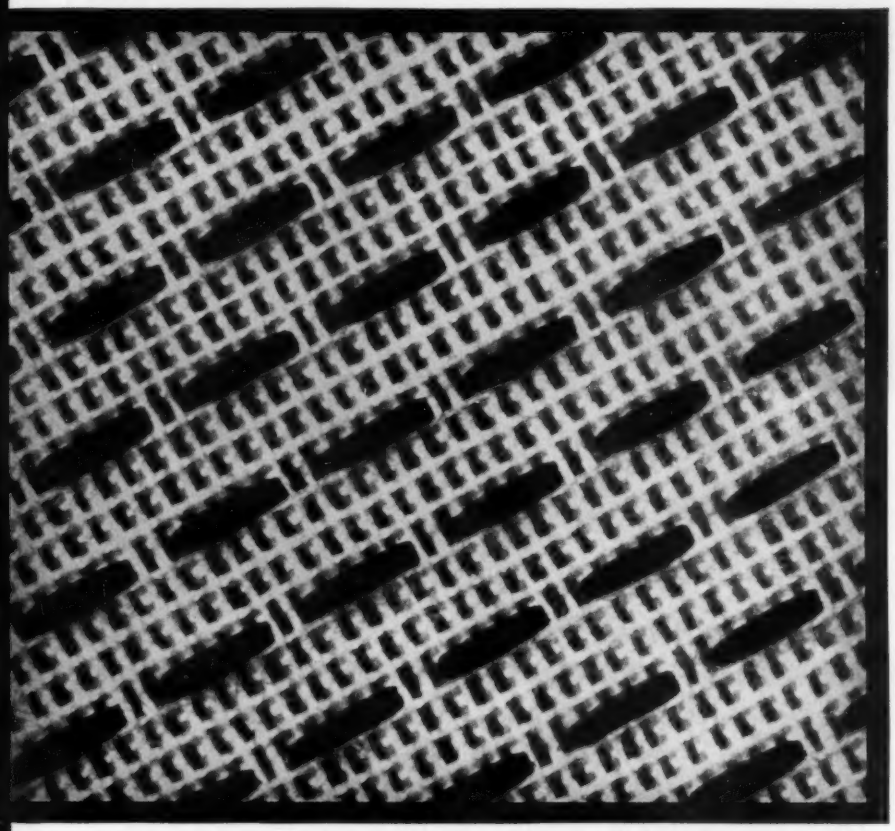
Roving truck—Floating-bottom trucks for easy delivery. Metal or Hamptonite construction, in several sizes. Excel Textile Supply Co. (F-44)

Variable-speed-drive data — Bulletin 20B6082C describes sizes and types of drives, motor mounts, and bearings. Allis-Chalmers Mfg. Co. (F-45)

Industrial air conditioners — Central-station cabinet-type units described in Bulletin No. 8127. American Blower Corp. (F-46)



The Close-up of Construction



An original fabric using B & C yarns magnified 100X.

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Signed

Frederick Boger

The Yarn that makes Fine Fabrics

You get fine fabrics every time with BOGER & CRAWFORD Bleached Dyed and Mercerized yarns. That is because you get quality yarns.

Illustrated is an unretouched photograph of a new fabric made with B & C yarn. Judge for yourself the distinctiveness of the fabric. Note the appealing close-up of construction.

You are invited to write today for full advantages offered by B & C quality yarns.

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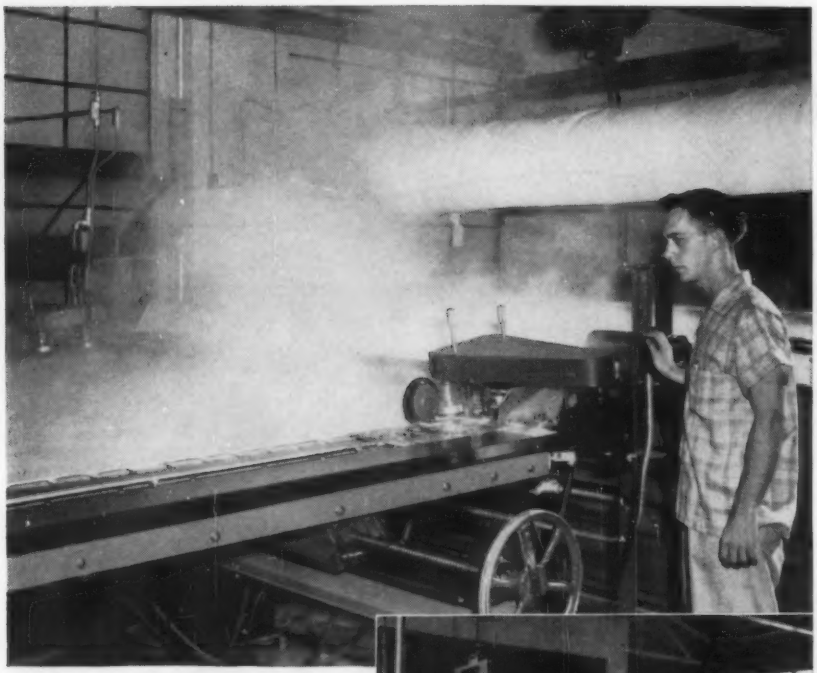


Askania Edge Position Control Increases Production 100%— *Reduces Man Hours 25%*

PIN-TENTERING FRAMES RUN AT FULL SPEED AT KINGSBORO MILLS, INC.

Kingsboro Mills, Inc., Daisy, Tennessee, manufacturers of "Rogers Lingerie" installed three Askania Edge Position Controls to operate their pin-tentering frames. Here are some of the results they report:

Doubles production! James C. Childress, dye room superintendent, reports, "Under the old system we were running 30 yds. per minute. Now with the Askania equipment we are running 60 yds. per minute—wide open. We can't run the frame any faster."

Reduces man hours 25%! Attaching fabric to the pins on the pin-tentering frame—a job that Askania now does automatically—was so tedious that employees could stand only a "couple of hours" of it. Askania does the job effortlessly—does a neater, more even job than could ever be done by hand—controls to 1/32".

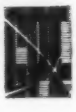
No maintenance costs! No down time! Gregg Quick, Vice President of Kingsboro Mills adds, "We have three Askania units in operation; one, a year and a half old, the second installed in December, 1954, and the third in July of this year. Our men installed all three units without assistance and *we have had no maintenance at all to date*. Moisture used to short out our electronic controls and cause frequent work stoppages; there is nothing to short out on this hydraulic equipment—and it's much faster than motor driven worms."

If you have a cloth guiding problem it will pay you to investigate the advantages of Askania controls—write for details today.

ASKANIA REGULATOR COMPANY

272 E. Ontario Street, Chicago 11, Illinois

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION



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NEW LITERATURE Continued

Seamless stainless tubing—Properties, how to fabricate and machine it. Other descriptive data in folder TB-355. Babcock & Wilcox, Tubular Products Div. **(F-47)**

Box trucks—Knock-down type in capacities to 500 lbs. Made of steel, aluminum, or stainless steel. Roller-bearing wheels. Kennett Equipment & Machinery Co. **(F-48)**

Steel terms—Identification of types, various processes, physical data in Bulletin No. 6. LaSalle Steel Co. **(F-49)**

Resins and latices—For the textile industry. Various types, uses, and properties described in a booklet from Goodyear Chemical Div. **(F-50)**

COTTON GINNER'S HANDBOOK, compiled by Tom J. Johnston; Arkansas-Missouri Cotton Ginners Assn., Inc., 1012 N. Sixth St., Blytheville, Ark.; 159 pages, $5.

This book should be of great value to ginners who want to give their customers better ginning and better service, and it is designed to help them get a better price for their cotton. Useful information is instantly available at the ginners' fingertips, compiled by experts in every phase of gin operation.

Mill men who want to find out more about the raw material they work with will also find this well-illustrated, easy-to-follow book useful.

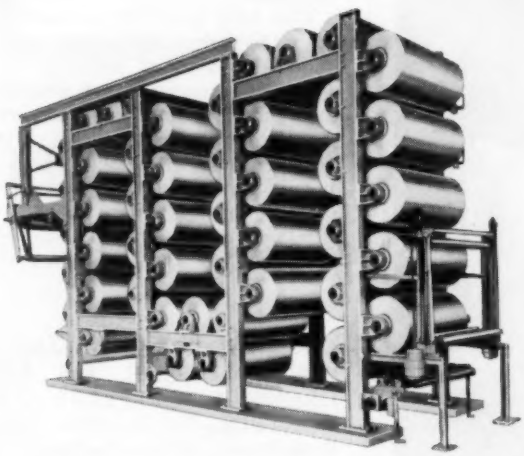
TEXTILES, by Norma Hollen and Jane Saddler; The Macmillan Co., 60 Fifth Ave., New York 11, N. Y.; 197 pages, $5.

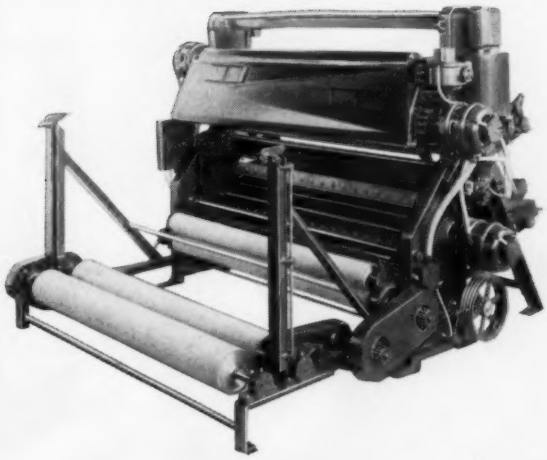
This book was designed to give

FINISHING

number six of a series depicting

MORE AND BETTER TEXTILE PRODUCTION WITH HYATTS





(Above, left.) Morrison Dry Cans equipped with a Hyatt Hy-Load Bearing at every shaft end position.

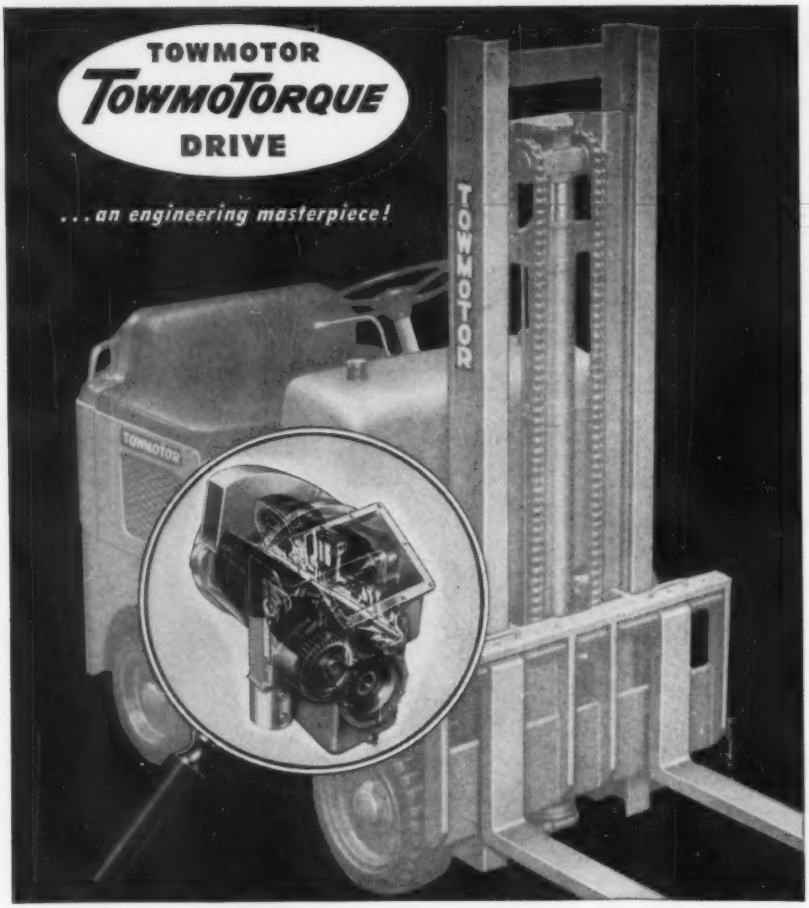
(Above, right.) Hermas Model AV Shear in which several sizes of Hyatt Hy-Load Bearings are employed on the revolvers.

Heat, humidity and high stress can play havoc with ordinary bearings in textile finishing equipment. That's why leading manufacturers of dry cans, washers and many other finishing machines depend on Hyatt Roller Bearings engineered to withstand such rigorous conditions.

Moreover, finishing is another critical stage where the slightest oil stain can quickly convert a profitable "first" into a costly "second." Hyatt housings are securely sealed to prevent lubricant leakage—another reason why you're always sure of *more and better textile production with Hyatts!* For further details on the profitable application of Hyatt Roller Bearings to textile machinery, request Bulletin T-54 from Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER



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No other fork lift truck can match the smooth-power performance of a Towmotor with *TowmoTorque* Drive. There's no clutch to throw, no gears to shift. The exclusive *TowmoTorque Creep Control* allows full power for lifting while positioning the truck. "Forward" or "reverse" can be preselected *while truck is in motion* for fast getaway! And *TowmoTorque* lasts the lifetime of the truck with less maintenance than any other drive.

TowmoTorque is the only drive engineered for all fork lift truck operations. It is available in Towmotor Fork Lift Trucks exclusively. Get the facts from your nearby Towmotor Representative, or write TOWMOTOR CORPORATION, Div. 2211, 1226 E. 152nd St., Cleveland 10, Ohio.

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FORK LIFT TRUCKS and TRACTORS
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students a workable knowledge in the selection, use, and care of textiles. Throughout the book, the authors emphasize the properties that affect the use and care of textiles. Manufacturing processes are included but are limited to those that affect the nature of the fiber, fabric, or finish.

HUMAN RELATIONS FOR A CHANGING WORLD, Edited by Lucille E. Hein; Association Press, 291 Broadway, New York, N. Y.; 125 pages, $2.

This book gives the proceedings of the 36th Silver Bay conference on human relations in industry. It includes 26 papers on such subjects as the changing labor scene, current salary administration problems, how to put ideas across to supervisors as well as subordinates, how to improve employee motivation, and how to get employee support for cost-reduction activities.

AN ANNOTATED BIBLIOGRAPHY ON NOISE, ITS MEASUREMENT, EFFECTS AND CONTROL, by Industrial Hygiene Foundation, Mellon Institute, 4400 Fifth Avenue, Pittsburgh 13, Pa.; 364 pages. $7.50.

This bibliography is intended as a useful reference for engineers, executives, and others who may be concerned with problems resulting from excessive noise. Its preparation by Industrial Hygiene Foundation was prompted by the need for a systematic survey of the voluminous literature on the subject.

The 2,336 references are arranged chronologically for greater ease in locating a particular subject and for historical background. Material is indexed by both subject and author. A section on measurement of sound and noise and another on measurement of hearing loss cover instruments, techniques, and evaluation.

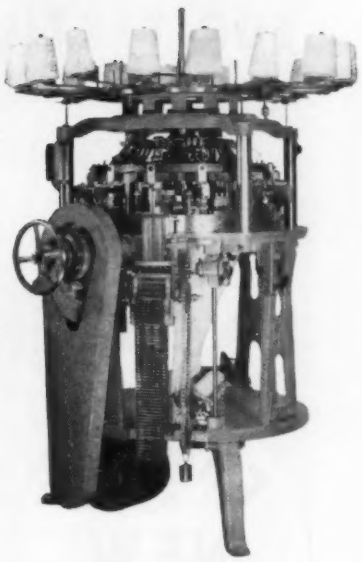
PROGRESS THROUGH INVENTION, by Cleveland Engineering Society, 2136 East 19th St., Cleveland, Ohio; 28 pages, $1.

How to invent is the theme of this booklet, which contains reprints of talks given at the first Invention Exhibit and Conference. Six authorities cover various phases of the need for inventions, how to invent, and how to patent and sell ideas.

HERE'S THE NEWEST

A SERIOUS BLOW

CONTINUED FROM PAGE 84



TORRINGTON NEEDLES

are recommended equipment for the Ordnance Gauge

OGA and OTA Machines

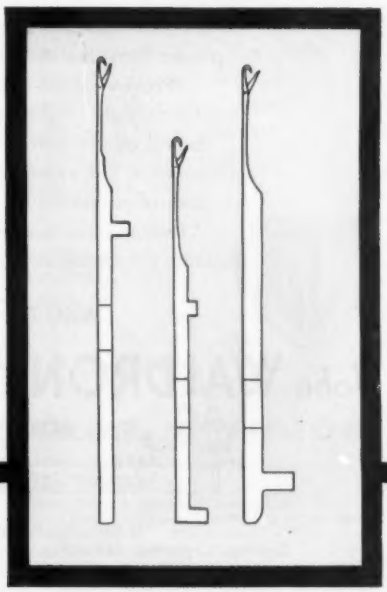
WHERE QUICK PATTERN CHANGES ARE A CONSTANT TEST OF NEEDLE QUALITY. These circular, fully automatic knitting machines boast unmatched flexibility in producing many varieties of basic stitch constructions such as interlock, rib and jersey fabrics — with an absolute minimum of change-over.

"Torrington Needles help our customers profit fully from the precision and versatility of our machines," says Mr. R. Zeruneith, President. "Their performance aids materially in achieving the fine records of steady, economical production for which the OGA and OTA are noted."

Whatever *your* types of knitting machines, Torrington Needles can help increase their production records, too. The unusually long service life of Torrington Needles reduces the downtime required for replacements, while their perfect laying of stitches helps achieve a quality fabric.

Depend on Torrington Needles to help you get the best performance from all of your knitting machines. The Torrington office nearest you will be glad to meet your needs promptly, as well as to furnish expert technical assistance with any specific needle problem.

THE TORRINGTON COMPANY
Torrington, Conn., U.S.A.
Established 1866



There's a **TORRINGTON NEEDLE**

for every machine...for every type of knitting!

HERE'S THE NEWEST

WALDRON PRINTER

FOR TEXTILES AND PLASTICS

Entirely NEW Design!

Air Cylinders give
EXACT Control of Printing Pressure

This high-speed gravure printer handles plastic films and textiles in widths up to 72". Proven center-drum design assures tight register on lightweight webs. New air cylinder pressure control allows better quality printing with easier adjustment. For example—each print nip can be controlled individually. All four print nips or any combination can be moved into or out of printing position simultaneously from a common control valve.

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Leaders In Web Process Engineering Since 1827

World's Leading Builders of Machines For
Coating, Crepeing, Embossing, Film Casting, Flocking, Gumming, Guiding, Laminating, Printing, Rewinding, Slitting, Unrolling, Varnishing, Waxing, Winding.

A SERIOUS BLOW

CONTINUED FROM PAGE 84

be opposed, as it would take from Congress and from the people the right to remedy existing injuries and make us powerless to prevent further damage. The OTC is an instrument drawn in Geneva earlier this year that would, if approved, commit the United States to enforce the General Agreement on Tariffs and Trade (GATT) as it now exists or may hereafter be amended. It would leave in the hands of an assembly of foreign nations, of which a U. S. State Department representative would be only one, the right to determine U. S. foreign-trade and domestic-tariff policies. The OTC is an irrevocable power of attorney to write blank checks on U. S. industry, labor, and agriculture.

OUR WORST CRISIS

CONTINUED FROM PAGE 84

wrecked. There can't be free trade when there is unfair trade.

There can be only one answer to this kind of economic insanity; and that is some sort of sensible, fair control over the amounts of foreign cloth and apparel and finished textile products coming into this country. This control is needed not only for the preservation of the textile industry; it is a necessity for the good of millions of cotton farmers who depend on a sound home market. It is absolutely necessary for the good of thousands of people who work in the cutting-up trades and apparel industries.

In the long run, import controls are needed for the good of all American consumers and our national economy itself. Our nation can never afford to be put at the mercy of foreign interests in a matter so vital as clothing for its people and armed forces.

This situation is bound to be corrected.

We can still make the best textiles there are. We have something to give the American consumer that no foreign country can ever give. We have big resources in craftsmanship and know-how. Let's build for the future on American qualities, American styling, American satisfaction. Let's do it aggressively, not by playing up to phony patriotism or by running down foreign goods just because they are foreign-made. Instead, let's make up our minds to turn out the best we know how, sell it on its merits, and tell the public about it with all the pride and enthusiasm we have.

Now—all from one source

QUALITY YARNS

"HYPO" USERS...
Here's Why You Save Money...
Get Better Results, Better Service

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GENERAL CHEMICAL
Anhydrous
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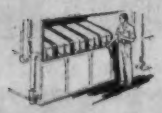
The Preferred "Hypo" for

PHOTOGRAPHIC SUPPLIES
Packaged and bulk fixing agents

LEATHER PROCESSING
Two-bath chrome tanning

DRUGS AND COSMETICS
For bath salts, some disinfectants, parasiticides



TEXTILES
Assist in dyeing, printing; also used in making synthetic dyes.

MISCELLANEOUS USES
Bleaching groundwood, straw, fur. Organic chemical manufacture; water treatment.

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Major Processing Advantages

General's Anhydrous "Hypo" is a sparkling, crystalline, water-free product that assays 98% $Na_2S_2O_3$. It is free from caking tendencies common to ordinary hydrated "Hypo"... dry feeds well ... dissolves rapidly in water to give clear colorless solutions free of troublesome impurities.

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High density and reduced bulk add to shipping economy and handling ease. Long shelf life is another advantage of particular importance to manufacturers of photographic supplies.

Now—3 Producing Centers

The demand for General's Anhydrous Sodium Thiosulfate has resulted in *three* producing centers ... a three-to-one advantage over any other supplier. Newest of these recently went on the line at North Claymont, Del. Yes, with General's three-point source of supply, you get shorter shipping hauls, lower cost, dependable deliveries, better service. Add this to top quality—and you know why so many careful buyers insist on General Chemical Anhydrous "Hypo." Make it your choice, too.

• • •

For Hydrated "Hypo"...order General Chemical's high quality Standard Sodium Thiosulfate. Produced in grade size for all requirements.

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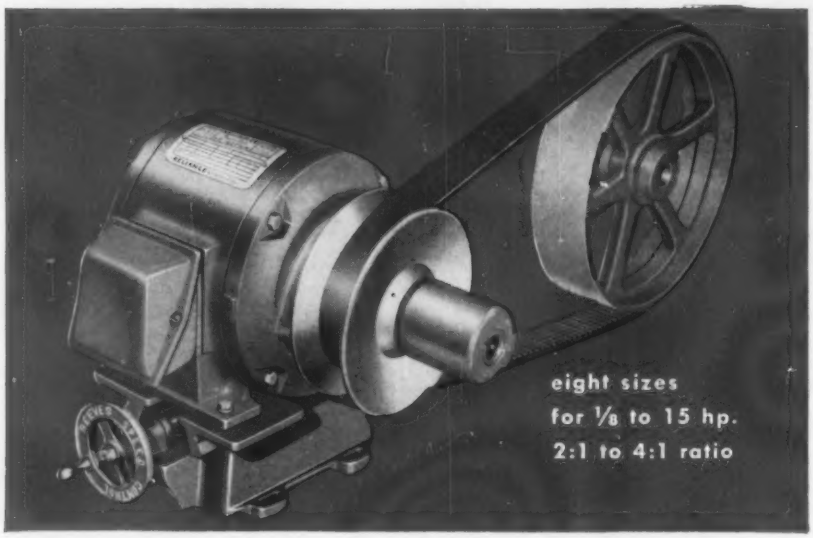

REEVES

Vari-Speed Motor Pulley

This simple, compact REEVES unit provides an economical way to widen machine range, and an efficient method of adjusting work flow to changing conditions. Speed variations are effected smoothly and instantly—without stopping the machine! Unit also available without motor. For bulletin complete with rating charts and dimensions, write Department W18-V545.

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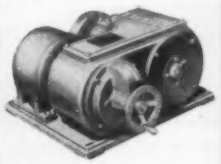
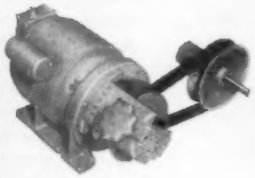
Heavy duty—2:1 to 16:1 range—fractional hp. to 87 hp.



Vari-Speed Motodrive
Compact—2:1 to 6:1 range—sizes to 40 hp.—fractional with 10:1.



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REEVES PULLEY COMPANY, COLUMBUS, INDIANA
Division of **RELIANCE** *Electric and Engineering Co.*

For more information, write direct or use Reader-Service post card.

QUALITY YARNS

CONTINUED FROM PAGE 87

on both front and back drawing are conventional.

By careful setting of the frames, drawing variation has been reduced to 13%. If variation exceeds 15%, the frames are stopped and the cause of the trouble is searched out and corrected.

Corriher spins from both one- and two-process roving. The first process is Whitin Inter-Draft 10x5, which produces a 0.75-hk. roving. The spindle speed is 910 rpm.; the jack shaft runs 450 rpm. In the drafting zone, the 1-in. front roll is set $\frac{7}{8}$ in. over the staple length; in the back zone, the setting is $\frac{3}{8}$ in. over the staple length.

The second process is 8x4 Whitin long-draft roving that produces a 3.10-hk. roving. Spindle speed is 1,200 rpm.; the jack shaft runs 430 rpm. These frames have the Casablancas drafting system. Settings are to the bite of the roll and apron.

Single-process 2.00-hk. roving for coarser yarns also is made on Whitin Inter-Draft 10x5 frames. Speeds and settings are comparable to the 10x5 frames on two-process roving.

PIN DRAFTERS

CONTINUED FROM PAGE 91

tain a uniform moisture content in the sliver. Mill personnel designed the system. Parchment has to be renewed about once a month.

Spray equipment at the back of the backwasher applies emulsion to the sliver. A 5.4-oz. sliver comes off the four-head gill box on the back of the backwasher.

Two double-mesh pin-drafter preparers produce a 1.4-oz. sliver. The units have two slivers per delivery and a draft of 7.7. Twelve combs make a 3.8-oz. sliver from 12 balls with two ends each. The 22-lb. balls last up to 17 hrs.

Next, the stock goes to the pin-drafter assemblers, which process six ends from can creels to produce a 3.2-oz. sliver delivered on balls for the finisher pin drafter. Draft on the assemblers is 7.3.

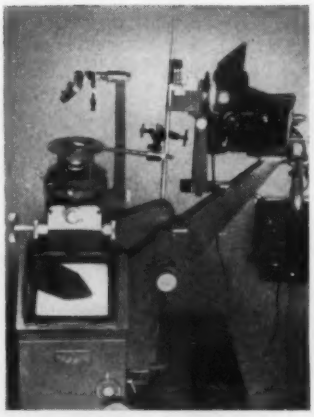
The finisher pin drafter delivers 2.9-oz. top from seven ends with a draft of 7.7.

Pin Drafters Eliminate One Operator

One operator handles an assembler and a finisher under the new setup. Before, an operator handled only one set. The sets were combined for better quality, and an operator is now responsible for her own finished top. Twelve heads of gill boxes were re-

Install these PLATTS PRECISION SPINDLES on your present frames to save POWER and CAPITAL

These and any other type of spindle to modernize your present frames can be supplied at a material saving to you. These spindles are manufactured by the world's largest maker of fine spindles. Special alloy steel is used throughout and all raw materials are subjected to thorough testing and examination. Fine dimensional limits are insisted upon for every component part. Each spindle is run and balanced, then subjected to a detailed final examination for balance over a range of speeds far greater than it will be subjected to in operation. Please write for new bulletin. Our engineers will gladly assist you in conversion plans and recommend suitable spindles for bobbins or paper tubes.



Projection microscope checks profile of spindle point.

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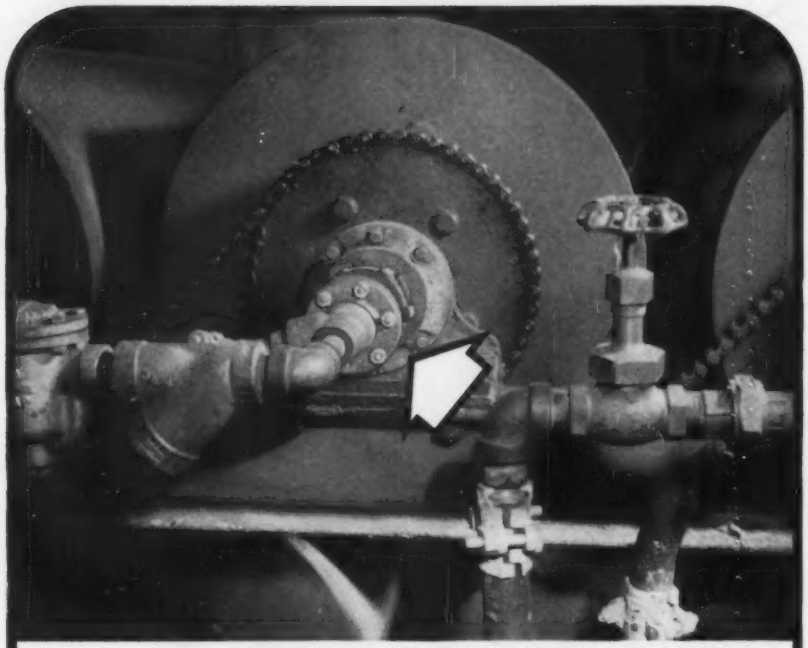

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Users Get These Benefits:

1. LONGER TROUBLE-FREE SERVICE—Here is protection you can get against expensive "down time". New Barco Type IBR Revolving Joints are built to maintain a leakproof seal month after month and year after year without costly maintenance and repair.

2. LOWER POWER COSTS—Barco Joints make a real difference in your power costs—up to 50%—because they run freely and are ball bearing equipped. Little affected by increases in pressure, temperature, or speed.

3. BETTER PERFORMANCE—Full steam flow. Tight seal for maintenance of good drainage. Accurate control of temperature. Single flow or syphon styles.

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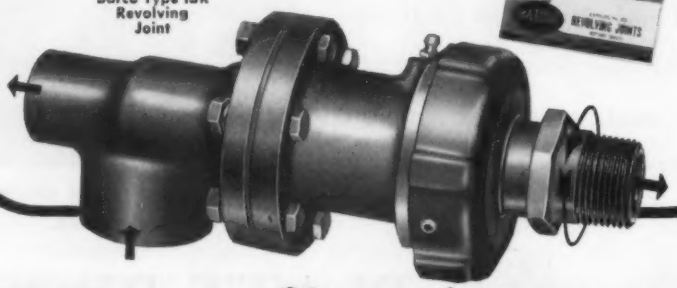
Barco Type IBR Revolving Joint



BARCO *Manufacturing Co.*
534M Hough Street • Barrington, Illinois

placed with eight heads of pin drafters. While three operators were required for the gill boxes, only two are needed for the eight heads of pin drafters.

The pin drafters after the combs are not on maximum production. When the assembler balls pile up, the operators assume other duties. Although the addition of other combs would have balanced operations, French has the advantage of very flexible operation.

A Bahnson central-station air-conditioning system keeps the card room at 70% r.h. and the combing room at 75% r.h. All rooms have humidity controls.

Operators Make Proof Tests

French makes tests on every operation every 2 hrs. The finishers are checked up to 12 times per shift. A proof test is made with a template that has minimum and maximum lengths marked on it. After a 30-sec. run, the girl running the operation checks the sliver with the template. She also checks the weight. If the sliver is outside the limits, the girl goes directly to the fixer. She waits until he has corrected the settings, and then she runs another 30-sec. proof to check the setting.

The quality-control laboratory runs eight Uster evenness tests per day, one test per shift on top from each finisher. The results of a typical run on a lot of 20.6-micron 70s is: Uster average, 2.19%; average variation, 7.99%; maximum variation, 15.63%.

The laboratory also makes 10 moisture tests per day on all top and checks fiber diameter in microns with a microprojector and neps on a nep board.

HOSIERY PROFITS

CONTINUED FROM PAGE 92

to the overtime loss. Cut overtime to as little as possible and maintain floating shifts on operations that run around the clock.

Watch waste and substandards. Some mills add 10% of the yarn cost to allow for substandards, but these goods must be processed as regular goods; so there is more cost than just yarn.

If a mill produces 500,000 doz. socks per year and makes 10% substandards that sell for an average of $2, the mill loses $50,000 if the price for first-quality goods is $3. Since the making of substandards means a loss in production of first-quality goods, the cost must be figured from the selling price.

If this cost of making substandards was included in the cost of making

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The requirements for dyed mixture yarns with a bright effect and without a trace of streakiness has created a demand for VIGOUREUX PRINTING. The ultra-smooth effect achieved by printing bands of color on a thin web of gilled material, permits complete control of shade during large and small runs. Shades from the palest 3% pastel tint to a rich 85% color density can be achieved. Please write for the new SACM bulletin on VIGOUREUX PRINTING.
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In addition you get extras which are seldom obtainable elsewhere. Your flyers are heat tempered to give them extra rigidity. They are balanced by our patented Selecto-Speed process to run smoothly at your own operating speeds. And you get your choice of five superb finishes to meet your particular requirements.

1. **Regular — unpolished**
2. **Rayon Bright — highly polished**
3. **Mirro-Buff — highly buffed for combed and synthetic stocks. Highly tag resistant.**
4. **RCK Black — highly rust resistant**
5. **Ideal Finish — a combination of RCK Black and smooth-as-glass, tag resistant Gold Finish*.**

*Note: Gold Finish is still offered alone, but a new process enables us to apply it with RCK Black at approximately the same price as Gold Finish alone.

Please write for information and prices.

Ideal Machine Shops, Inc., Bessemer City, N. C.

Continuous Service to Textile Mills Since 1925

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the 500,000 dozen, the profit per dozen would not be affected; but there would be $50,000 less profit for the year than if no substandards were made. A mill could afford to pay several good men to reduce the 10% figure.

Grade substandards with care to obtain the highest grades. The demand for substandards is often greater than the mill can supply; so the selling organization could offer substandards to the buyer who also buys regular goods. Substandards can be used to provide work when there is a shortage of regular work or when a temporary tie-up holds up regular production.

BAD SPINNING PRACTICES

CONTINUED FROM PAGE 113

is processed, a 4.25 multiplier was used for 60s yarn and no trouble was encountered. Naturally, the front-roll speed was higher than it would have been had a 4.75 multiplier been used.

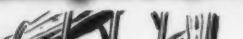
A good rule of thumb is to deduct 0.05 for each $\frac{1}{32}$ in. of staple added, starting with 1-in. staple. For example, use 4.75 for 1 in., 4.70 for $1\frac{1}{32}$ ins., 4.65 for $1\frac{1}{16}$ ins., and so on until you reach the longest staple length. However, when any change in multipliers is made, the breaking strength of the yarn and frame running conditions should be thoroughly checked.

Another production loss can be caused by the use of a higher multiplier than the standard 3.50 for filling. For many years, a 4.00 filling multiplier was used on 18s yarn in a certain mill. How or where it originated, no one seemed to know, except that it was on the construction sheet.

The filling had a live twist, even after conditioning. When a filling break occurred in the weave room, the broken end twirled with the live twist and caught onto the warp ends before the loom could knock off. This action occurred often enough but was not easily detected. Finally, many broken picks were traced to the twist, since the style in question almost invariably had a greater percentage of broken picks than any other.

Cams Cause Slough-offs

A bad spinning-room practice, and one that must be carefully watched even though its occurrence may be more or less rare, is the reversed filling cam. Every section hand should know that a reversed cam, with a slow down-rail, causes slough-offs in the loom. In weaving, tension applied against the closely wound coils causes the slough-offs. The fast down-rail spaces the coils far enough apart to prevent this



sloughing off. The slow up-rail passes

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These qualities in AL Stainless Steel can boost the salespower of a product, or cut the operating costs of equipment—often with little or no increase in first cost. Very likely *you* have problems where these advantages can bring you benefits. Let us work with you. ***Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pennsylvania.***

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Clinton starches give you the dependable quality that makes yarns weave at high efficiencies . . . turn out first rate textiles that'll pass the most discriminating inspector's final check. In fact, many mills use Clinton starches as a standard of comparison. They increase warp strength to easily withstand abrasion . . . reduce friction . . . smooth fuzzy fibres. Clinton starches give your fabrics proper crispness and body when used in the finishing process too.

Choose Clinton starches. You can depend on them . . . warp after warp after warp.

and remember : technical service in connection with : your specific problems is available : upon request.

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sloughing off. The slow up-rail passes the yarn in such a position that the coils are taken off while going away from the next coil during weaving.

No one should be allowed to turn a ring except the section hand. This practice was uncovered on the second shift, and the error was committed by a male spinner. After turning over about 10 rings, he soon had the ends tied back because he couldn't keep the ends up. Such a practice makes the task of the section hand much more difficult.

Mixing travelers is another bad practice that usually is done unthinkingly. When a frame is changed over to another count, the traveler cups should be emptied and checked before the new travelers are placed in the cup. Spinners who tend two or more counts should be cautioned not to mix the travelers. Mixed travelers cause either soft bobbins or an ends-down condition.

The elimination of bad spinning room practices calls for the full cooperation of every employee and constant supervision by the supervisors. Good spinning is everybody's business.

SMOKY YARN

CONTINUED FROM PAGE 123

At the time, a $1-million modernization project for Clara was under way; and, as part of the project, mechanical air filters were being considered. The management decided against mechanical filters, however, and installed a Trion electrostatic air-cleaning system. Plans were that if the cleaning system worked satisfactorily a similar unit would be installed later in Dunn, next on the list for modernization.

The trial installation in Clara was successful, and a couple of years later a similar unit was installed in Dunn. Here's how both the systems are set up and operate:

Outside air enters an air chamber through large openings equipped with louvers that can be opened or closed as required. These openings are covered on the outside with screens designed to catch large particles of lint and trash, which occasionally become air-borne when cotton is being handled in a nearby warehouse. The screens are swept down periodically with a long-handle brush.

A large fan pulls air from the air chamber through a bank of ionizing and collecting cells. The foreign matter in the air passes through a high-voltage field (13,000 v.) that gives the particles a positive charge. Then,

negatively charged plates (6,500 v.) attract the positively charged particles.

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Place an order for Chemstrand nylon yarn today. Place another one weeks, even months later. You'll find yarn with the same high quality.

This is no coincidence. To get this continuity of quality, Chemstrand built its vast new Pensacola plant around the latest nylon processing machinery in the world . . . geared it to the most demanding tolerance specifications. To reduce the variables and increase control, Chemstrand coordinated the independent chemical and spinning operations into the only completely integrated nylon plant in the country.

The result is what you expect and want: nylon yarn whose denier, tensile strength, lustre, dyeability, cleanliness are Grade A. Sample some and see.

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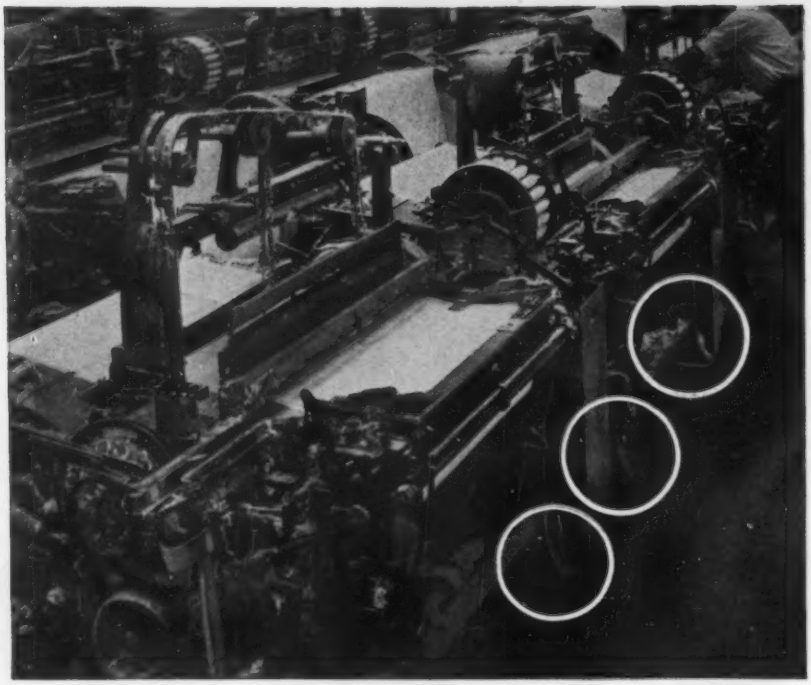

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negatively charged plates (6,500 v.) attract the positively charged particles, and the particles cling to the plates. The clean air is forced from this point into the spinning room and allied departments.

Wash Cells Twice Weekly

At both Clara and Dunn, the soot and dirt that collect on the cells are normally washed off twice a week. To clean the cells, the operator first turns off the power and then turns a single outside valve that controls a water-and-steam mix. The mix consists of water under 65-lb. pressure and steam under 125-lb. pressure.

The next step is for the operator to gradually build up the temperature of the water from 70° F. to 160° F. over a period of 4 or 5 mins. The slow build-up is to keep the insulators from cracking. Relatively little water is used in the washing operation.

The cells are washed for 20 mins. and dried for 25 mins. While the plates are drying, the operator is free to perform other duties, such as brushing down the outside screens. If the plates are not completely dry when the current is again turned on, a circuit breaker cuts off the power.

Each air-filtering station, of which there are three per plant, has a capacity of 60,600 cu. ft. per min. and an over-all efficiency of 90%.

COATED FABRICS

CONTINUED FROM PAGE 124

of fabric of suitable size for processing and accurately measured.

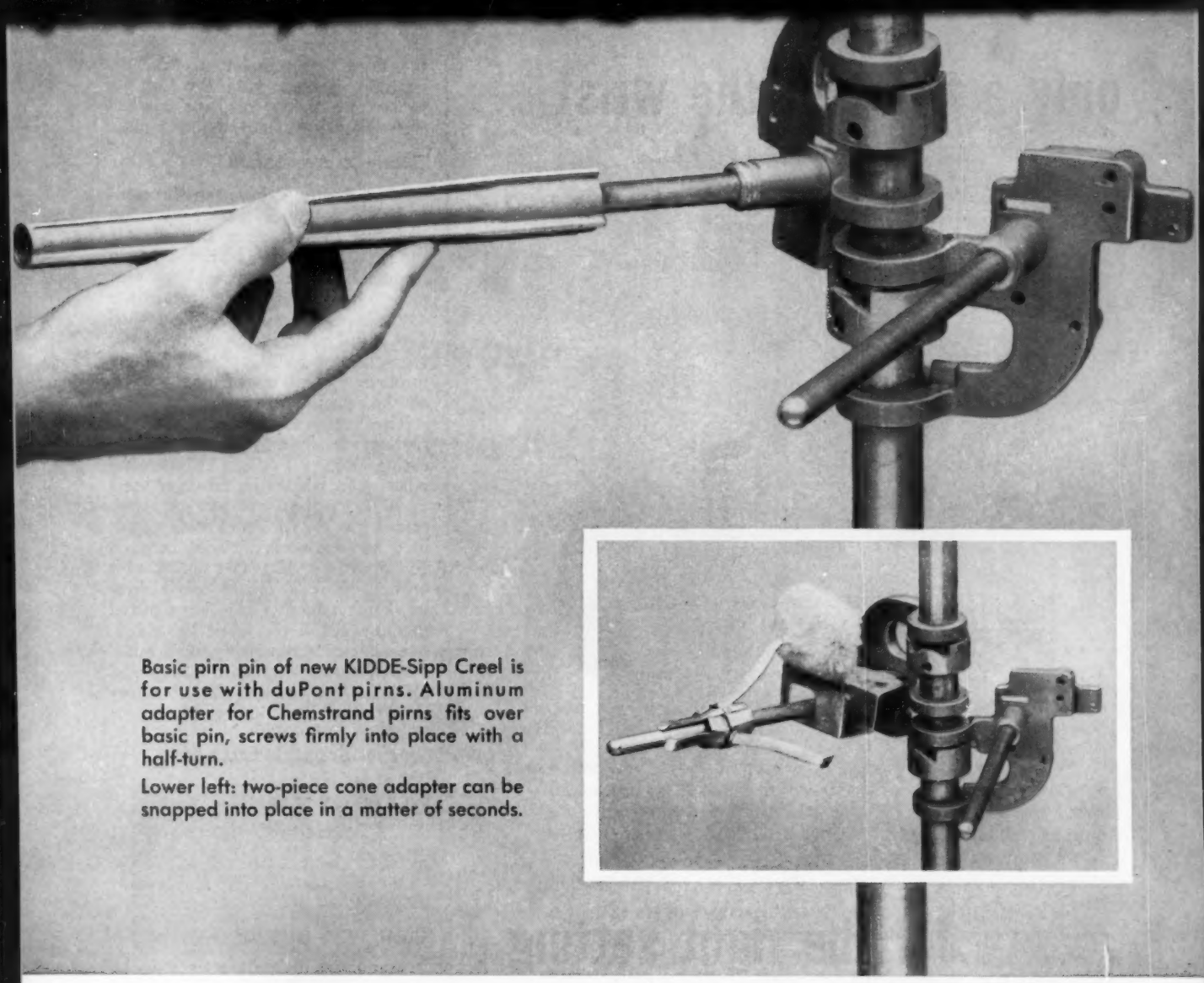
Several Coats Are Required

The microporous coating is built up of several very thin layers of the formula used in the Aldair process. The goods are coated in a machine that applies the synthetic and natural rubber mixture to the back of the goods. A doctor blade controls the amount of material left on the cloth.

After passing under the doctor blade, the cloth travels about 30 ft. over heated coils and returns under the coils to the front of the machine, where it is dry enough to be batched up. When the roll has made its first run, it is lifted back into the let-off supports and is ready for recoating.

The Aldair process requires 5 to 10 trips through the spreader to acquire an added 2½ to 5½ oz. per sq. yd. of coating material, depending on the particular fabric or end use.

To keep an accurate check on the amounts of material added to the fabric, each roll of goods is weighed before coating and checks are made during the coating process to gauge



Basic pirn pin of new KIDDE-Sipp Creel is for use with duPont pirns. Aluminum adapter for Chemstrand pirns fits over basic pin, screws firmly into place with a half-turn.

Lower left: two-piece cone adapter can be snapped into place in a matter of seconds.

Give your fabric a better start with a NEW, IMPROVED KIDDE-SIPP CREEL

To help you make better warps . . . and to make your warping more versatile, KIDDE-Sipp creels have been completely redesigned. Package holder arms are much stronger. Adapters are more rigid. Even the heaviest packages will not sag out of alignment.

Basic creels are fitted with pirn holders for the 12″ duPont pirn. Adapters for Chemstrand pirns, or for cones, spools and tubes can be added and fastened securely. Change-overs are easy and quick.

The new creels have plated pins with aluminum arms and adapters. Painting is eliminated . . . no rust can get on your yarn.

KIDDE-Sipp creels are available with inside, outside or vertical yarn delivery . . . with washer, post, or pulley tensions and with Kidde tension compensators. All are available with stop motions and with annunciator lights if desired. Write for further information to . . .

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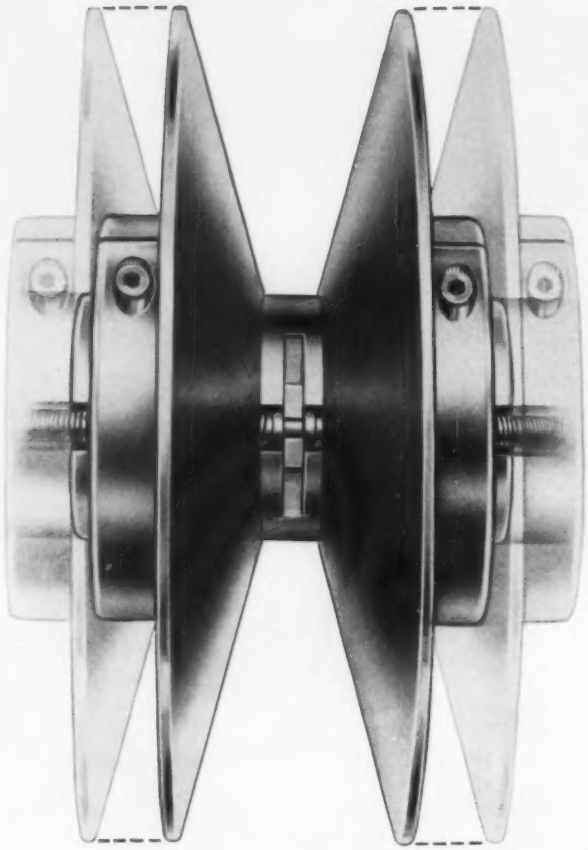

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the degree of completion. A final weighing is made after the last run to be sure the goods have received the necessary amount of compound.

Coatings Are Dusted

Most coatings have an inherent tackiness that would persist after curing; and to provide a smooth, dry surface, the coated fabrics are run through a machine that applies a dust made of starch, mica, talc, or mixtures of these substances. The unattached dust is shaken off in the machine, and the goods are rolled up. Then a run through a cleaning machine brushes off the remainder of excess dust.

The final operation of curing the coatings is done in a festoon-type curing oven. Endless chains carry poles upon which the fabric is hung in 20-ft. loops. Curing temperatures vary with the different compounds used but are generally kept between 250 and 285° F. The curing unit operates from a variable-speed drive so that production can be adjusted to the needs of the fabric being run. Average curing time is 45 to 60 mins.

After curing, the fabric is inspected for imperfections; and the laboratory checks the Aldair-processed fabrics for vapor permeability.

FILAMENT YARN

CONTINUED FROM PAGE 131

speed of about 8 yds. per min. The steam pressure in the drying cans should be 35 psi.

Slash With 100-Yd. Inserts

Trouble with tight ends may be experienced on the loom. To safeguard against this trouble, use a kraft-paper insert every 100 yds. on the loom beam during slashing to firm the beam for weaving.

Waste at the slasher should not be over 0.50% for both hard and soft waste. Draw each warp in individually as the coarse yarn does not allow effective tying in.

Slightly more power on the pick than normal is needed during weaving. This extra power tends to cause sloughing of the filling, but sloughing can be controlled by bristles in the shuttle and a special quilling technique.

To avoid sloughing and to control yarn balloon on the bobbin, wind coarse filament yarn on the quiller at normal spindle speeds but use a long, tapered No. 7 wind with a diameter of not more than $\frac{3}{8}$ in. Bobbins should have three deep grooves about $\frac{1}{8}$ in. deep.

Pirn-winding labor costs should amount to 5.78¢ per lb. There should be no more than 3.5% waste made

ROLLWAY

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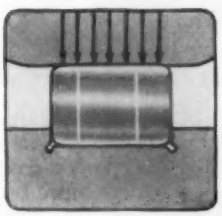

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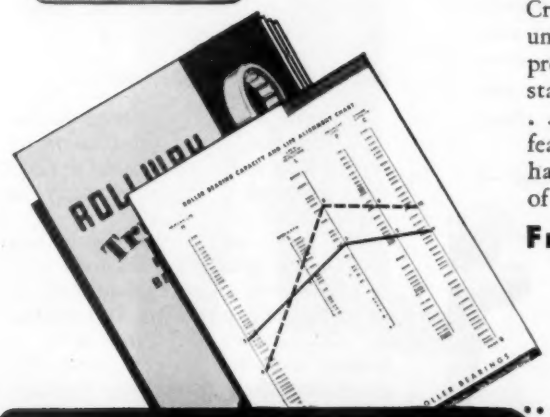

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May we tell you more about the "weighing system plan"—and its application to your requirements? Write to . . . Toledo Scale Company, Toledo 1, Ohio.

be no more than 3.5% waste made during quilling.

Don't Dye on Knitted Tubing

We find that knitted tubing on the dyetubes is too costly from a labor standpoint. The tubing also is displaced by the pumping of the liquor, falls off the package, and bunches between the ends of adjacent packages. If the tubing is reused, there is the additional problem of stripping and washing it.

Dyes should give a lightfastness of 50 hrs. and a washfastness equivalent to at least 10 washings at not over 120° F. There should be no evidence of crocking.

Run experiments to determine the type of finishing and percentages of solids to be left in the cloth. Solids should run from 3 to 5% on the weight of the fabric.

If the fabric is straight, try a double dip in a finishing bath at 160 to 180° F, with a five-ton nip. Juggle your speed and housing temperature to leave approximately 20% moisture in the cloth.

Calender the fabric on a friction calender equipped with a cotton bowl and steel roll, with the face of the fabric to the steel roll. Use a 2-to-1 ratio with steel roll heated to 200° F.

DYEING DACRON

CONTINUED FROM PAGE 143

to hurry the process because time is necessary to get good penetration of dye into the fiber. Apparent matches in a few ends generally exhibit surface-dyeing characteristics of poor resistance to washing and crocking.

Afterscour Is Important

Carriers of any type tend to reduce lightfastness of most colors if they are left in the goods after dyeing; so a thorough scour is necessary to complete the job.

The scour bath is made up with a fatty-amide detergent plus soda ash; and the goods are given four ends at 180° F. The procedure is repeated for dark shades. A warm rinse is flooded over the jig box, and the goods are then shelled up through fresh cold water.

For crisp finishes, a modified urea-formaldehyde resin, applied in a pad from a 1-lb.-per-gal. solution, gives satisfactory results. The finishing range at V. T. M. is supplied with auxiliary heat so that drying, curing, and heat-setting are accomplished in one run. The heat-setting stabilizes Dacron fabrics; and in the case of some shades, a thermosol effect tends to deepen the color.

Now there's a better way to carry

textile fibers

to market

Here is a MICARTA® shipping bobbin developed especially to withstand the squeeze of tightly wound textile fibers. Currently in use by one of the world's largest textile producers for the shipment of textile fiber, this new bobbin is proving itself ideal in a punishing application. Its remarkably high resistance to compression, impact and moisture absorption is seeing it through a record-breaking number of round trips from plant to converter without damage to bobbin or fiber.

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For 5 years, UCON Lubricants were tested in every phase of wool lubrication. Now, they are used in regular production by woolen mills. Only 1 to 3% is needed to give maximum lubrication.

UCON Lubricants are universally efficient—give even running on all yarn counts. They have built-in "drag," which gives uniform draws even with finest yarns at limit spins. And, they minimize static.

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YARN-BREAK TEST

CONTINUED FROM PAGE 118

worsted yarn (20% Merino, 50% pulled wool, and 30% rayon), the tension was adjusted to 140 grams per thread and the tests run by lot numbers. The thread breaks divided by the number of testing hours gave an index of 7 to 9. The yarn performed well in weaving.

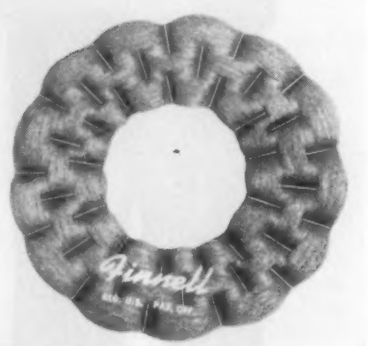
With this information, the test results have meaning. If the results give an index of 24, for instance, it is probable that unpleasant experiences will be encountered in processing the yarn.

However, the results must be treated as a combination of different factors. The degree of weavability depends on the quality of the raw material, yarn number, twist, and uniformity; but finally, the elasticity and strength that result from all four factors determine the weavability. No single factor is decisive.

Dynamic testing indicates that one of the quality factors is not adequate; but it doesn't, of course, point out which one.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 156



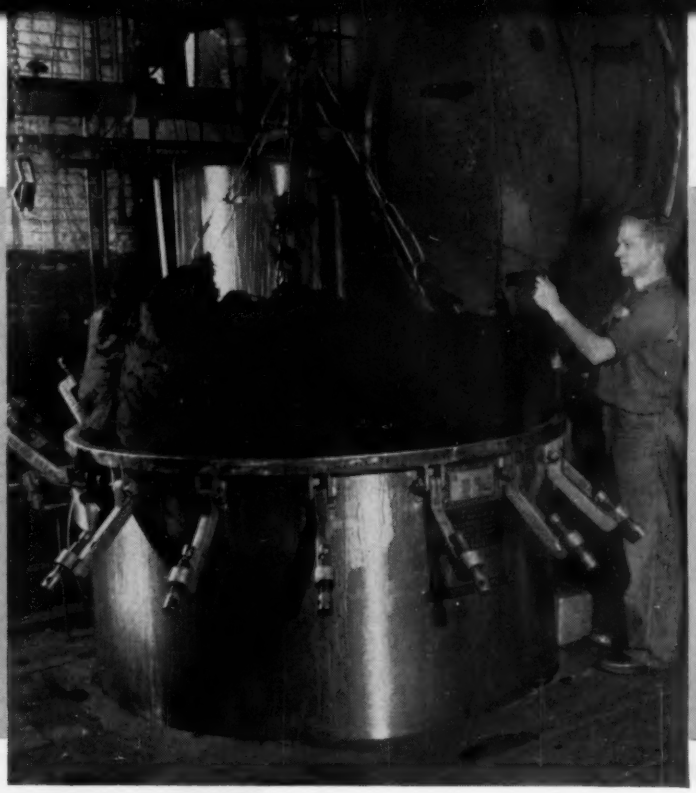
Pad for Floor Machines

A steel-wool pad of welded construction for floor-finishing machines is available from Finnell System, Inc., 1900 East St., Elkhart, Ind. This construction prevents shredding and bunching and allows the pad to wear evenly. Therefore, the pad lasts three to four times as long as common steel wool.

The pads are furnished in grades to meet every need of floor care including refinishing, dry-cleaning between refinishing, etc. Grades available are fine, average, coarse, and very coarse. Each grade is supplied in a full range of sizes and can be used on any fiber brush on all disk-type machines.

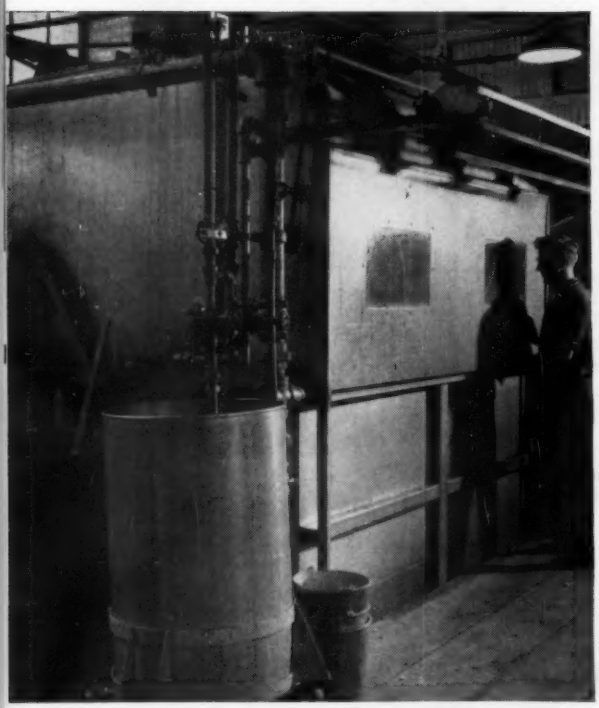
Circle T-20 on Reader-Service Card

Dyed synthetic fibers are removed from a Stainless Steel kettle at W. J. Dickey & Sons, Inc.



Pressure-dyeing in Stainless Steel kettles

reduces time and costs 50%



Operator checks one of four piece-dye machines in operation at Dickey.

● In use at the plant at Oella, Md., since 1941, Stainless Steel dyeing equipment has been a means of reducing costs and improving quality for W. J. Dickey & Sons, Inc.—manufacturers of fabrics for men's clothing since 1838.

Stainless Steel equipment has made possible dyeing of synthetic fibers under pressure with a cut in dyeing time and dyeing costs of 50% compared with methods formerly used.

Other important benefits of the change from wooden tanks to Stainless Steel extend to woolen fibers which cannot be dyed under pressure. Boil-outs are no longer necessary when dye shades are changed, and it has been found that Stainless Steel equipment outlasts wooden tanks about 2 to 1.

Stainless Steel—with its smooth, dense surface, its ease of cleaning and its superior corrosion resistance—is a potent weapon in holding the line on costs. Investigate it, and when you order Stainless equipment, be sure it is made from service-tested USS Stainless Steel.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

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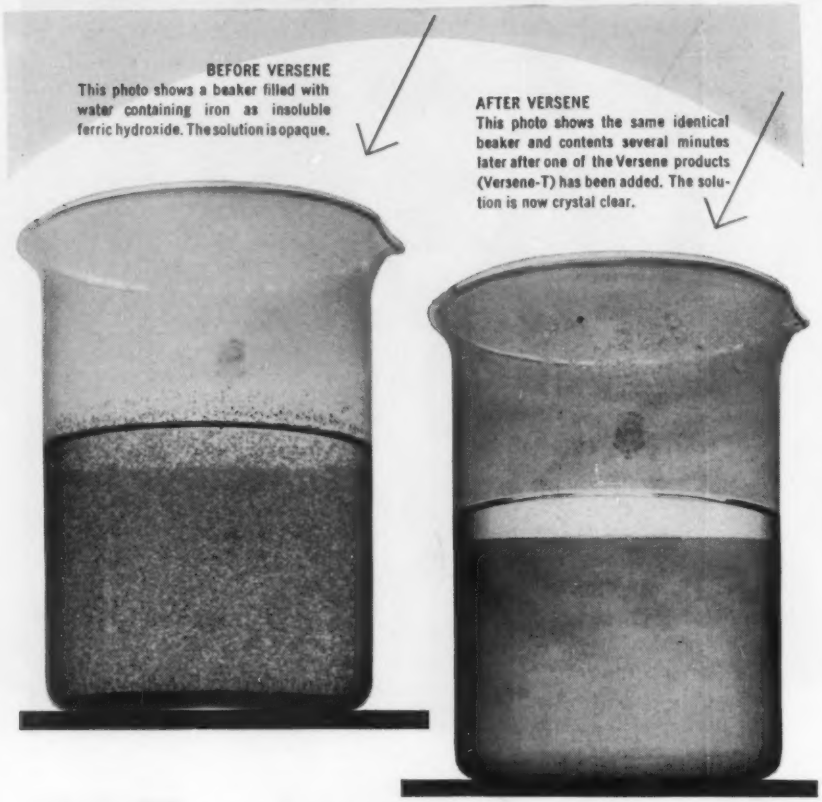
UNITED STATES STEEL


BEFORE VERSENE
This photo shows a beaker filled with water containing iron as insoluble ferric hydroxide. The solution is opaque.
AFTER VERSENE
This photo shows the same identical beaker and contents several minutes later after one of the Versene products (Versene-T) has been added. The solution is now crystal clear.

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George Mann & Co., Inc., 251 Fox Point Blvd., Providence, R. I.
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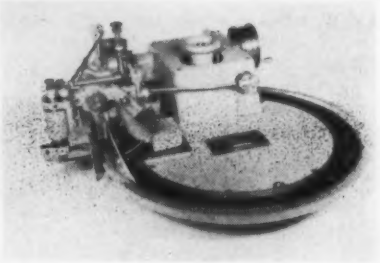
204 For more information, write direct or use Reader-Service post card.



Sweater Looper

The Model ST sweater looper, built by John W. Hepworth & Co., Inc., Lehigh Ave. and Mascher St., Philadelphia 33, Pa., is a single-needle machine with the sewing mechanism on the left side. As the fabric passes through the sewing needle, a stripper guide strips the fabric off the dial points.

With this arrangement, a collar can be looped on the body of a sweater with one continuous looping seam after the shoulder seams have been closed. The dial points are stainless steel to resist corrosion.

Circle T-21 on Reader-Service Card

Improved Twister Spindle

An improved twister spindle that features simplification of stationary parts and elimination of periodic oiling has been announced by Hartford Machine Screw Co., P.O. Box 1440, Hartford, Conn.

Practically all machining has been eliminated from the split base that houses and aligns two prepacked ball bearings. The base also supports the snap-on spindle brake and provides an adjustment that controls the height

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an adjustment that controls the height of the bobbin seat.

The snap-on brake is snapped out of the way when the base nuts are removed for maintenance, and the base can be quickly disassembled by removing three socket capscrews.

Circle T-111 on Reader-Service Card

Portable Viscometer

A portable coaxial-cylinder viscometer has been announced by Ferranti Electric, Inc., New York, N. Y. The instrument consists of a rotating outer cylinder with a second cylinder located coaxially within it. The inner cylinder is free to move against a calibrated spring and moves a pointer over a calibrated scale to show the viscous drag on the inner cylinder.

The viscometer can take instantaneous, continuous readings without requiring motor stoppage during changes of speed. This feature allows the plotting of flow curves without stopping the shear in the sample.

Circle T-22 on Reader-Service Card

Automatic Tapping Tool

An attachment for tapping holes in metal automatically is being made by Tapmatic Corp., 648 W. 16th St., Costa Mesa, Calif. The attachment does not require any lead pressure by the machine operator during the tapping operation. The tool has a capacity from $\frac{1}{4}$ to $\frac{1}{2}$ in.

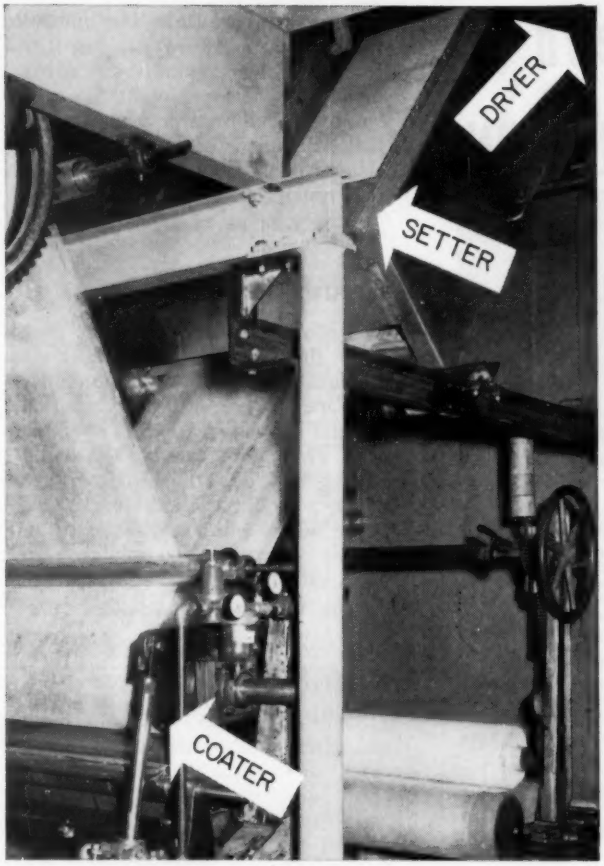
Circle T-23 on Reader-Service Card

Small-Machine Lubricator

A compact automatic lubricator, made by Bijur Lubricating Corp., 151 W. Passaic St., Rochelle Park, N. J., is designed to be used on small

HAE-KE 156-655

machines where a minimum of instal-



Three feet of electric heat adapts line to new product, operates at one-tenth allowable cost

To produce a new non-woven cotton fabric, roll-coated with polyvinyl chloride required additional heat capacity on the drying line. The cost of extending the line was prohibitive when other heat sources were studied.

SOLUTION: Intense, uniform Far-infrared heat. Three Chromalox radiant heat panels work perfectly at less than one-tenth the acceptable power cost of $.003 per square yard. Only minor alterations were necessary to the existing line. Setting time for coating was maintained at two seconds.

Chromalox Far-infrared panels are completely packaged modular units ready to hook up on circuits up to 600 V. Write for full details.

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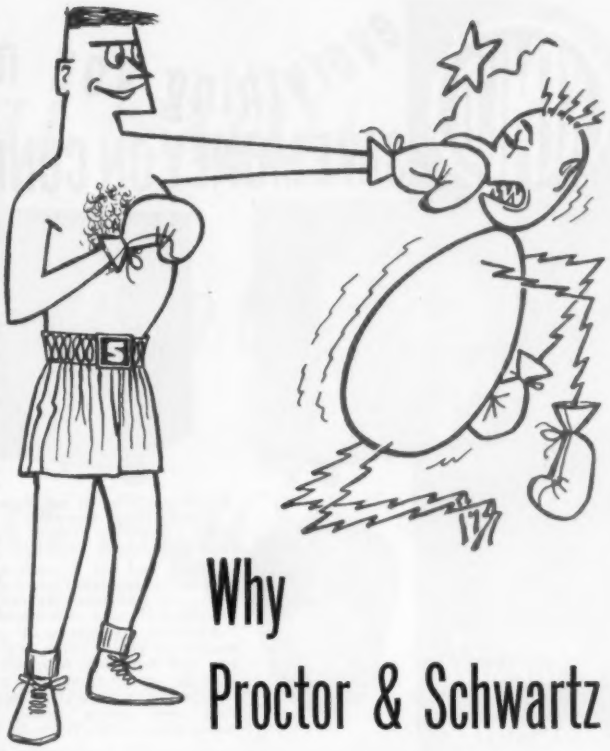
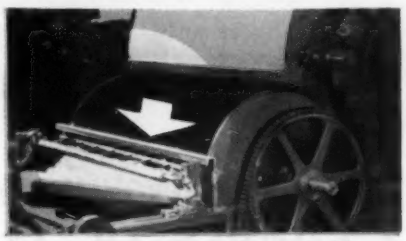


Why Proctor & Schwartz recommends the Simco "Midget"

FOR ELIMINATING STATIC



Simco Midget in use on Proctor & Schwartz Synthetic Card

Proctor & Schwartz, along with other respected machine manufacturers, recommends the SIMCO *"Midget"* static eliminator because it delivers the knock-out punch to static under all operating conditions . . . safely, inexpensively. Write today for information about Simco's complete line, including special channel bars for cards and garnetts, and shockless bars for inflammable applications.

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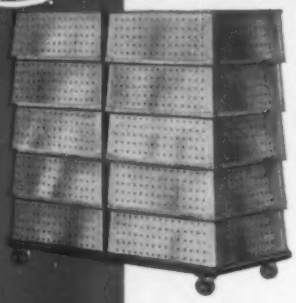

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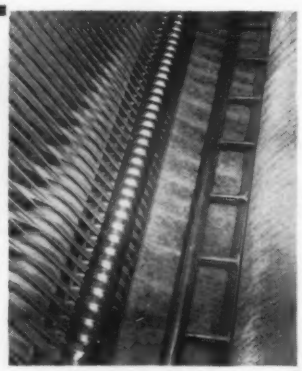

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machines where a minimum of installation space is available. The lubricator measures only 2x3x4½ ins., but it will feed controlled amounts of oil to as many as 25 bearing points on a machine. The lubricator is powered by the machine it lubricates and discharges oil at 30 psi. into a distribution system of ⅜-in. tubing.

Circle T-24 on Reader-Service Card

Grease-Gun Filler

A low-price filler pump for grease guns that handles lightweight and medium-weight greases is announced by Lincoln Engineering Co., 5742 Natural Bridge Ave., St. Louis 20, Mo. The pump can be attached to any 25- to 50-lb. original refinery container with three thumbscrews. The pump fills a 1-lb.-capacity grease gun in only 30 secs. and completely eliminates contamination.

Circle T-25 on Reader-Service Card

Rack for Circular Items

Small coils of wire steel, strapping, and other circular items can be stored neatly in a rack manufactured by Frick-Gallagher Mfg. Co., Wellston, Ohio. All stored items may be reached easily. The capacity is 1,300 lbs. at each rack level. Two standard heights are available, 7 ft. 3¼ ins. and 9 ft. 3¼ ins.

Circle T-26 on Reader-Service Card

Stair-Climbing Truck

A hand truck designed to move materials up or down stairways is made by Valley Craft Products, Inc., 750 Jefferson Ave., Lake City, Minn. The truck handles barrels, boxes, and other parts with little physical effort by the operator.

Circle T-27 on Reader-Service Card

Portable Conveyor

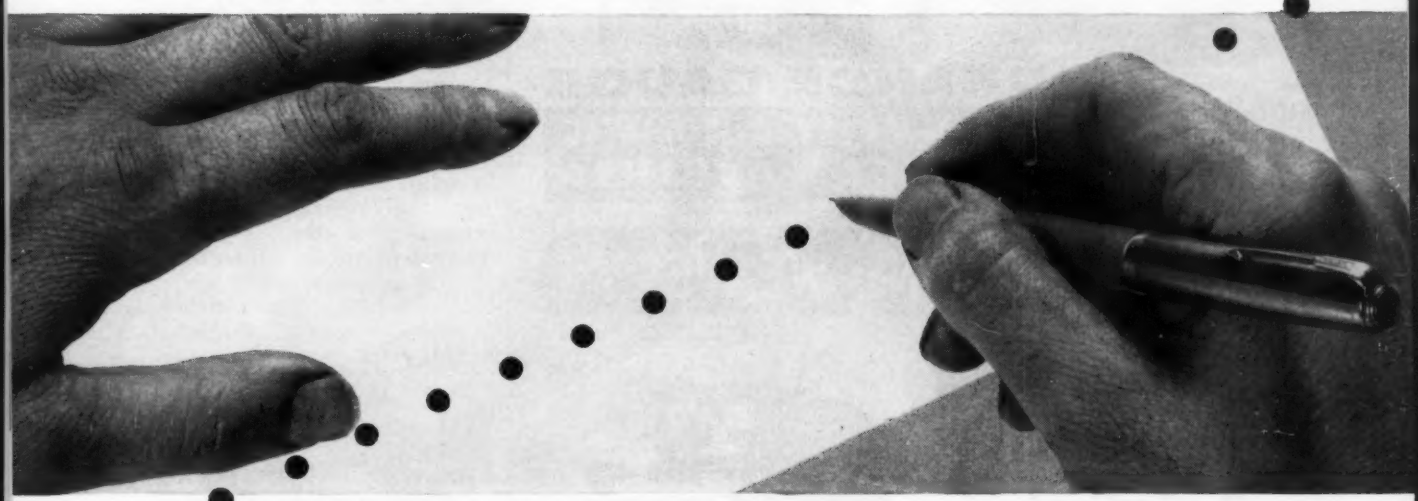
A power-driven portable booster for belt conveyors is introduced by Sage Equipment Co., Inc., 30 Essex St., Buffalo 13, N. Y. The unit can be equipped with ¼- to 1-hp. gear motors. It's used to stack boxes, cartons, bags, etc. and can also be used to move materials from one floor to another.

Circle T-28 on Reader-Service Card

Quick Belt Repairs

A self-vulcanizing rubber material for repairing conveyor belts has been announced by Flexible Steel Lacing

Before you sign your new contract for caustic soda



Right now is the time—before you make your new contract commitments—to carefully review the form of Caustic Soda you plan to buy.

You may be able to realize savings, for example, by converting to 50% Liquid Caustic—

IF you buy *solid caustic* and your transportation charge is less than $1.18 per 100 lbs., or

IF you buy *flake caustic* and your transportation charge is less than $1.62 per 100 lbs.

On the other hand, a number of 50% Caustic Soda users, depending upon volume consumed and location, have found it highly profitable to switch to 73% concentration.

Changes in your operations may affect the most economical form of caustic for you. What has been assumed for years to be right may not be the best for you today. Only an up-to-date analysis can tell. So before you make your new commitments, consult Columbia-Southern's Technical Service Department. A staff member will be assigned to help you determine the most advantageous form of caustic soda you should buy.

Write, wire or telephone our Pittsburgh office today.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA

DISTRICT OFFICES: Cincinnati • Charlotte
Chicago • Cleveland • Boston • New York
St. Louis • Minneapolis • New Orleans • Dallas
Houston • Pittsburgh • Philadelphia
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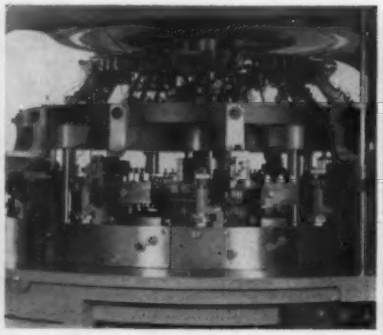
IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division

For more information, write direct or use Reader-Service post card.



Performance-proven for automatic, high speed production of interlock and jersey garments

For maximum output of diversified garments of synthetics, worsteds, zephyr, cashmere yarns etc. • Stitch construction includes interlock, jersey, rib, which may be incorporated with tuck and welt and (on interlock fabric) fancy stitches with stripes, colored checks; blister, grenadine stitches. • Also pleat effects and jersey interlock. • O. G. machines increase production 20% or more even with inexperienced help. All parts easily, quickly accessible. Unit-construction of sub-assemblies—easily removable, replaceable—cuts down-time, speeds set-up. • Jogger switch advances by needle; stationary take-up adjusts for tension while operating; stop-motion brake prevents dropping body or other damage. • Write for catalog. ORDNANCE GAUGE CO. AMBER & HAGERT ST. PHILADELPHIA 25, PA.

HAE-OG159 -755

OGA OTA

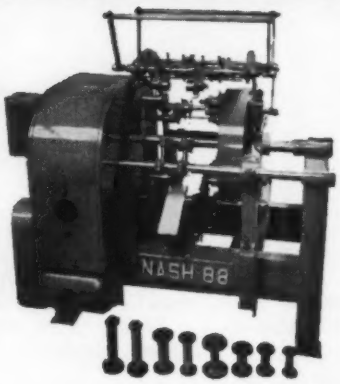
ORDNANCE GAUGE

CIRCULAR FULLY AUTOMATIC KNITTING MACHINES

Sales Representative
MAC M. ROTHKOPF
317 BUSHWICK AVENUE
BROOKLYN, N. Y.

"Neither SPINS Nor WEAVES"

Yet Essential for True QUALITY Production! . . .



This NASH 88 Automatic Bobbin Refinisher produces no yarn or fabric — but it does prevent the defects in spinning or weaving due to rough *bobbins*.

HOW IT FUNCTIONS . . . The NASH 88 refinishes throwing and twisting bobbins at the rate of ten pieces per minute. It provides controlled abrasive action on the barrel, inside flanges, and over top radius of flanges. Burnishes inside surface and top radius of fibre flanges. Removal of all roughness prevents tearing of filaments from rough bobbins. *Cleans* as well as refinishes.

NASH SPECIAL FINISHING MACHINES SINCE 1890

J. M. NASH *Company*

2365 N. 30th Street • Milwaukee 10, Wisconsin

Co., 4607 Lexington St., Chicago 44, Ill. The material, called REMA, makes it possible to repair bruises, tears, and edge damage on conveyor belts without using heat or heavy vulcanizing equipment.

Circle T-29 on Reader-Service Card

Control Water Supply

Plates to be used with plastic mesh feeding bags are the latest addition to the line of materials to control scale and corrosion in water made by Micromet Div., Calgon, Inc., 323 Fourth Ave., Pittsburgh 22, Pa. The plates are a form of slowly soluble phosphate and are used in the recirculated cooling water systems of air conditioning, refrigeration, and other cooling systems.

Circle T-30 on Reader-Service Card

Light Burners Safely

A control system for safely lighting and operating multiple-burner boilers has been designed by Electronics Corp. of America, 720 Beacon St., Boston 15, Mass. The system consists of a prewired and tested control cabinet assembly, which houses all the necessary controls, timers, valves, and accessories for a complete installation. The system provides starting and operating flame-failure protection for one to four burners. The assembly may be applied to gas-, oil-, or gas-and-oil-fired burners.

Circle T-31 on Reader-Service Card

Pressure Controls

Instruments that provide high- and low-limit control for steam, air, and noncorrosive liquids and gases have been designed by Electronics Corp. of America, 720 Beacon St., Boston 15, Mass. The instruments are used to start or stop operations at preset maximum or minimum pressures within the range of a 3-in. vacuum to 240 psi.-ga.

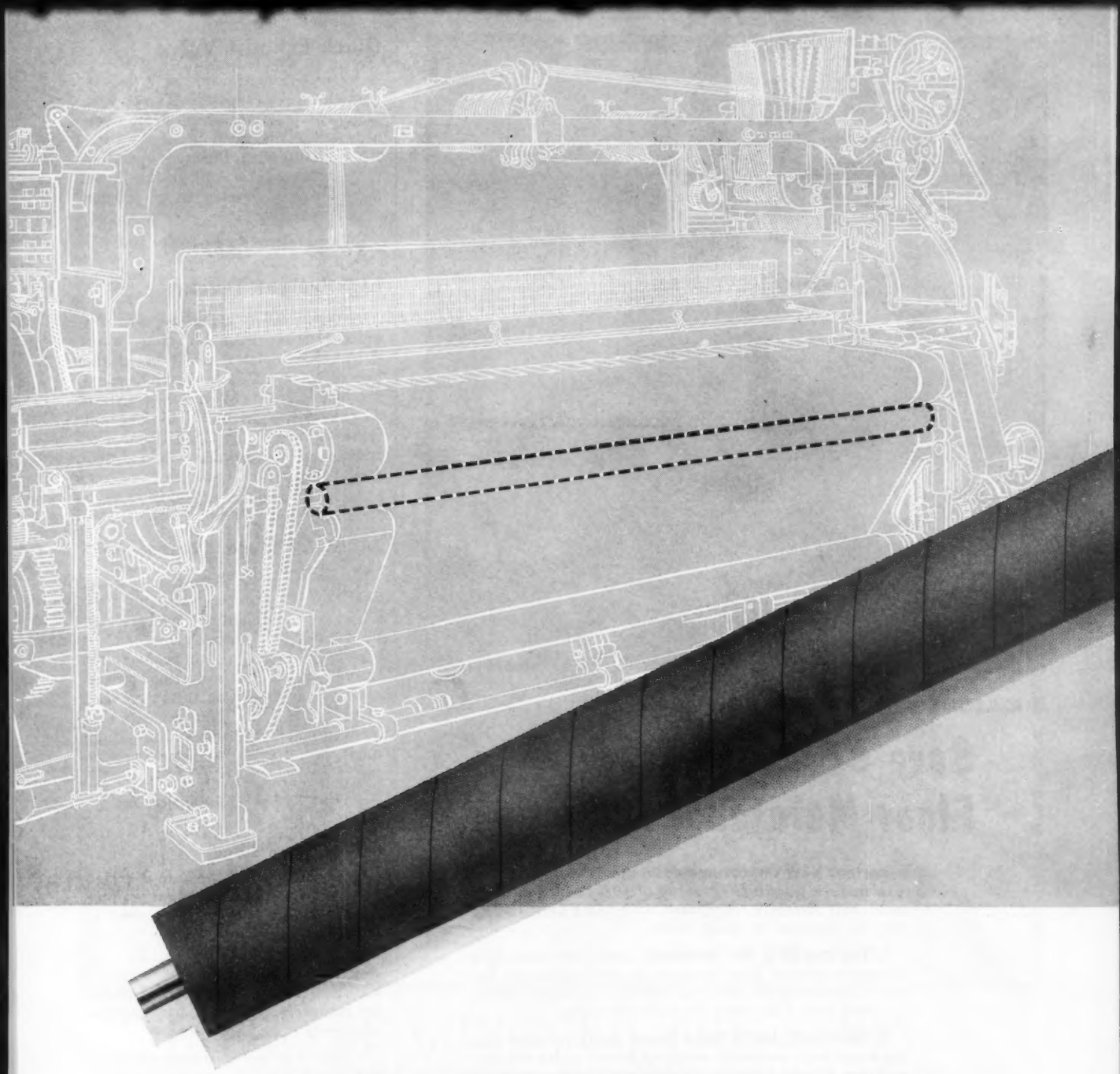
Circle T-32 on Reader-Service Card

Plastic Valve

An all-molded plastic valve to handle industrial corrosives is made by The Lunkenheimer Co., Cincinnati, Ohio. The valves are said to have been successfully tested on a machine that mechanically reproduces 20 years of on-the-job wear.

Circle T-33 on Reader-Service Card

Quick-Exhaust Valve



LESS FABRIC CREASING . . . with this extra-resilient press roll covering

Here's the press roll covering that actually eliminates a basic cause of most fabric creasing—uneven take-up tension. It's the Armstrong DK-149 Press Roll Covering, specially developed to hold cloth snugly against the *full width* of the take-up roll. This assures completely uniform take-up tension . . . fewer fabric creases.

DK-149's high-friction surface never flattens out or develops "high spots," so cloth never slips or runs unevenly. It won't mark the most delicate fabrics, yet it has more than enough friction to hold the cloth firmly.

DK-149 lasts far longer than conventional coverings, too, because it's made of sturdy sponged synthetic-rubber, reinforced with resilient cork particles.

DK-149 comes in handy ribbon form for quick application to the roll. For test samples, see your Armstrong man. And write for our booklet, "Armstrong Textile Roll Coverings and Mill Supplies." Armstrong Cork Company, Industrial Division, 6911 Dauphin Street, Lancaster, Penna.

Armstrong LOOM SUPPLIES

. . . used wherever performance counts

LOOM CLUTCH DISCS AND INSERTS • PRESS ROLL COVERING • LOOM BRAKE AND LET-OFF STRIPS • TEMPLE ROLL COVERINGS

6 TIMES A YEAR is only buffing needed for this Tennantized weave room floor.

3 REASONS WHY YOU CAN NOW

Save 30% to 60% in Floor Maintenance Costs

Important NEW improvements in the TENNANT System now make it possible—a saving of 30% to 60% in floor care costs annually, compared to 5 years ago. Here's why, as reported by many mills:

1. You use 50% less manhours today in cleaning a TENNANT-treated floor because its dirt-resistance has been almost tripled. You buff only 1/5 to 1/10 as often . . . need only a dry mop for daily cleaning.

2. Floor seals last 4 times longer today because they are more wear-resistant, stand up better under oil, grit and dirt. Bright, lustrous finish is easily renewed without need for sanding.

3. You save time in problem areas, like weave rooms, with new TENNANT materials that resist humidity, starch, discoloration, etc. Saves manhours (see photo above). *Write today for details; ask for estimate of savings possible in your mill.*

TENNANT
ESTABLISHED 1870

G. H. TENNANT CO.
2586 N. 2nd Street
Minneapolis 11, Minn.

FLOOR MAINTENANCE SYSTEM

Quick-Exhaust Valve

A quick-exhaust valve now in production by Ross Operating Valve Co., 120 Golden Gate, Detroit, Mich., permits automatic opening of an oversized exhaust when the main operating valve is reversed. And at this time, the cylinder is discharged of exhaust almost instantly.

Circle T-34 on Reader-Service Card

Lightweight Truck

A lightweight trailer suitable for order-selection work in large warehouses is the latest addition to the line of trucks made by Lewis-Shepard Products, Inc., Watertown, Mass. The truck weighs only 245 lbs., but it has a capacity of 2,300 lbs. The trailer has a one-piece welded-steel frame with a hardwood deck.

Circle T-35 on Reader-Service Card

Material Stops Corrosion

A line of chemical-resistant coatings and linings has been announced by The Corrosion Control Co., Inc. Two products are introduced, Neocor C-10 and Neocor HD. Both products are recommended for protecting process equipment, tanks, structural steel, and water condensers. The products may be brushed or sprayed on the equipment, and they dry at room temperature.

Circle T-36 on Reader-Service Card

Electric Counter

A popular-priced medium-size electric counter that may be mounted on a base or a panel is announced by Production Instrument Co., 704 W. Jackson Blvd., Chicago 6, Ill. Advanced features include an over-all life of 50-million counts, 1,000 counts per minute, 7-w. power consumption, and quiet operation.

Circle T-37 on Reader-Service Card

Dragline or Manual Truck

A cart designed to be used for dragline operation that may also be used as a manual truck is announced by Lewis-Shepard Products, Inc., Watertown, Mass. Features of the truck are (1) a rubber shock absorber is mounted in the dragline pin guide and removes all strain from the pin as it is raised or dropped into the dragline track; (2) the center portion of the deck is constructed of replaceable hardwood; and (3) the tubular end rack is removable and has a blackboard, check tray, and bill holder.

Circle T-38 on Reader-Service Card

THIS MAN IS MAKING
HIS REPUTATION . . .

DOW

HAVE YOU CHECKED THE SAVINGS YOU MIGHT GET WITH 73%?

The gentleman above has just been struck by an idea. It may very well save his company an appreciable amount of money. The thought: Dow caustic soda in 73% solution is probably *his* best buy, too.

If someone in *your* organization hasn't checked the changed caustic picture lately, you may be missing this chance to save. Hundreds of caustic users *have* discovered the new economy of Dow's 73%. Why an economy? Because today's *increased freight rates* more than cancel out the narrow price difference between 50% and 73%.

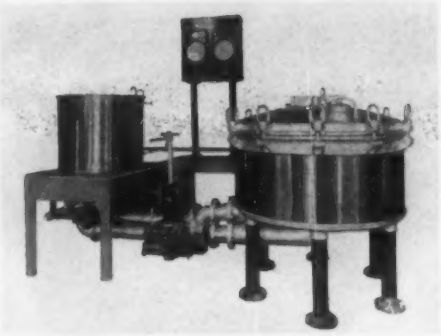
A second point of savings, particularly for greater volume users, is the *unloading operation*. Many man-hours are saved because 73% unloads in the same amount of time as a car containing a lower concentration.

A Dow Technical Service man can give you an accurate picture of the savings you could realize with 73%. And don't rule out 73% even if you're now on solid or flake. The pertinent, factual information you get so easily is one of the advantages of dealing with Dow. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. AL392E-1.

you can depend on DOW CHEMICALS

DOW

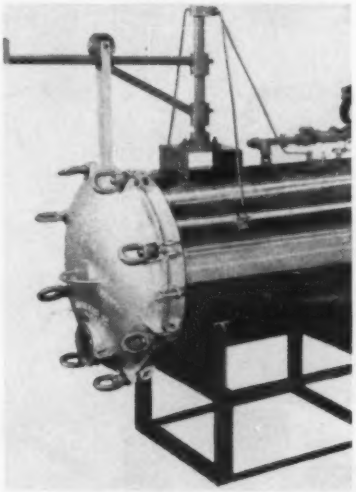
RUGGED VERSATILE



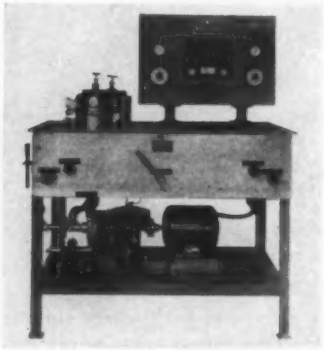
Single-Kier Package Dyeing Machine

Today's Most Economical Dyeing Equipment

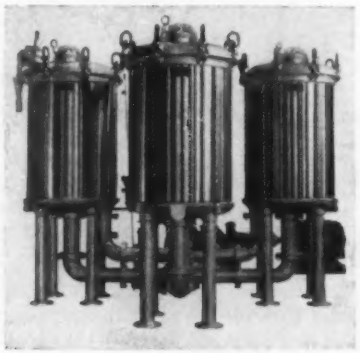
Gaston County offers you a complete line of today's most rugged dyeing equipment . . . engineered with the most modern automatic controls for high-pressure, high-temperature dyeing essential for today's new yarns. Write for complete information.



New "Hy-Vacuum Pressure Autoclave for Twist Setting."



Laboratory Dyeing Machine



Multiple-Kier Beam and Package Dyeing Machine

GASTON COUNTY DYEING MACHINE CO.

Pioneers In Automatically Controlled Dyeing Machinery

STANLEY, NORTH CAROLINA

Gaston County Dyeing Machine Co.
Terminal Bldg., 68 Hudson St.
Hoboken, N. J., G. Lindner, Mgr.

The Rudel Machinery Co., Ltd.
614 St. James St. W., Montreal
137 Wellington St. W., Toronto

For more information, write direct or use Reader-Service post card.

Truck-Battery Charger

The Hertner Electric Co., Cleveland, Ohio, has introduced a single-circuit battery charger known as model KXM. The unit charges either lead-acid or nickel-iron batteries used in electric trucks.

Circle T-39 on Reader-Service Card

Cable-Hung Light Fixtures

When Cablematic-mounted lighting is used, fluorescent lighting fixtures can be pulled down and cleaned without unhooking hangers, since no hangers are used. This system of light-fixture mounting is manufactured by Wil-Son Mfg. Co., Cloverport, Ky. All lighting fixtures on one lengthwise line are mounted on one counterbalanced cable.

Circle T-40 on Reader-Service Card

Fiberglas Cutting Wheels

Abrasive cutting-off wheels reinforced with a Fiberglas fabric operate safely at a surface speed of 16,000 ft. per min. The fabric is woven by Hess, Goldsmith & Co., New York, N. Y.; and the wheels are made by The Carborundum Co., Niagara Falls, N. Y.

Circle T-41 on Reader-Service Card

Stacking Shelves

Steel shelves to be set one on top of the other are being manufactured by Stackbin Corp., 1079 Main St., Pawtucket, R. I. Extra shelves and bin compartments are placed on top of the ones already used when they are needed.

Circle T-42 on Reader-Service Card

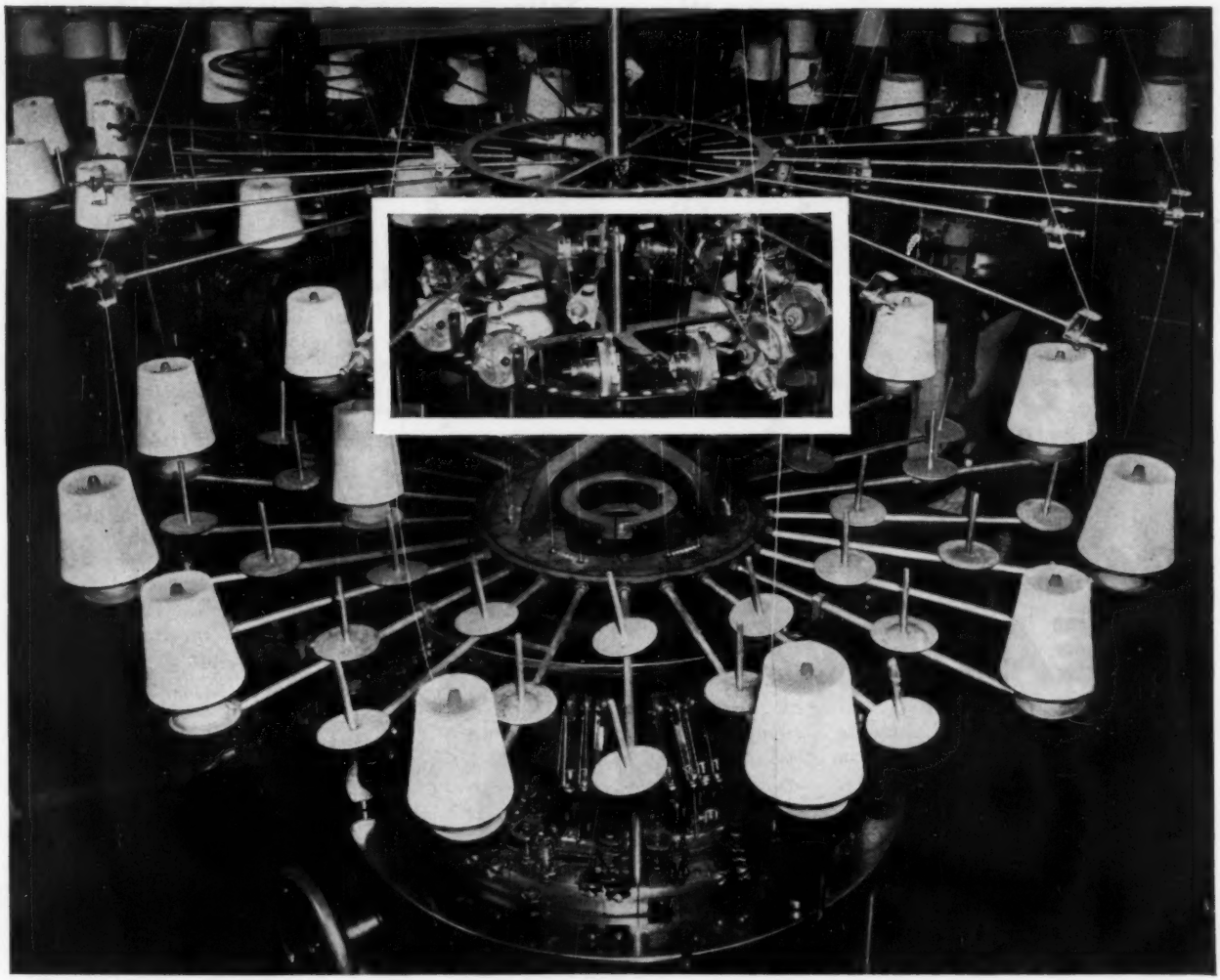
Control Panel

An automatic control circuit that is said to prevent battery and starter damage due to overcranking has been developed by Industrial Control Panel Co., Chicago, Ill. The control is being used to cut costs in sequence operations, load transfer, machine-tool operation, fuel flame control, warning panels, and superheaters. Because of its small size and fewer working parts, the circuit is modestly priced.

Circle T-43 on Reader-Service Card

Switchbox Lock

Equipment for padlocking control switchboxes that are being repaired



"ORLON"*–how it's tension-controlled at the Hudson County Knitting Mills

The Hudson County Knitting Mills, who make sweaters of DuPont "Orlon", recently installed Kidde Standard Compensators — one for each yarn feed — on their Jacquard Knitting Machines.

Mr. William A. Zeug of Hudson County Knitting Mills reports, "Since installing these Kidde Compensators we can control fabric widths much more accurately. We have no more uneven stitches due to irregular tension, no more back-winding of cones and less frequent stitch cam adjustment."

Reports like this, while amazing, are not unusual. Because Kidde Compensators, used by more than 500 leading textile mills throughout the nation, cut costs and produce a better product wherever they are installed! They can do the same for *you*. For more information on Kidde Compensators, write Kidde today.

** A DuPont acrylic fibre*

OTHER APPLICATIONS!

Kidde Standard Compensators, installed on Circular Knitting Machines will also solve tension problems in the running of rubber yarns, stretch-type nylon yarns, and most spun and continuous filament synthetic yarns!

Kidde (K Kidde)

The word 'Kidde' and the Kidde seal are trademarks of Walter Kidde & Company, Inc.

Walter Kidde & Company, Inc.
1191 Main Street, Belleville 9, New Jersey

STOP DREAMING ABOUT BIG PACKAGES...

CALL MEADOWS

For 24 years we've been s-t-r-e-t-c-h-i-n-g spinning and twister frames, making them do things their designers never dreamed possible.

WE CAN REBUILD YOUR FRAMES FROM FLOOR TO CREEL

Our New Phone No.
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MEADOWS MANUFACTURING COMPANY
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REPRESENTATIVES:

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MATTHEWS EQUIPMENT CO.
93-A Broadway
Providence 3, Rhode Island

WALTER S. COLEMAN
P. O. Box 782
Salisbury, North Carolina

has been developed by Master Lock Co., Milwaukee, Wis. The company recommends that each man carry a padlock, which only he can open. The device permits up to six men to lock out the same switch box; so power can't be turned on until all have finished with their jobs. This practice is endorsed by the National Safety Council to prevent accidents.

Circle T-44 on Reader-Service Card

Labels

Two new labels have been developed by Normandie Co., New York, N. Y. The new products are a pressure-sensitive label that can be applied to virtually every type of surface and a vinyl label specially adapted for use on polyvinyl and polyethylene surfaces. The identifications are available in any size, shape, design, or color desired. Printing, done by a new process, produces labels of high clarity. The labels are said to hold printing well and never fade. The items can be custom made or purchased in a variety of stock forms.

Circle T-45 on Reader-Service Card

Safety Eyeglasses

Safety eyeglasses with interchangeable lenses, that can be snapped into place without tools are available from Watchemoket Optical Co., Inc., 232 W. Exchange St., Providence 3, R. I. Clear lenses are provided for eye protection from impact. Medium-green lenses are available for extreme glare under a bright sun. The lenses are shatterproof methacrylate. They are curved for extra protection, and the frame is curved to fit the forehead.

Circle T-46 on Reader-Service Card

Loom Weaves Metallics

A small loom for weaving place mats from metallic yarns is being sold by John Dritz & Sons, 1115 Broadway, New York, N. Y. The loom has 16 sections and costs $3.95.

Circle T-47 on Reader-Service Card

Mechanical Marking Pencil

A mechanical marking pencil, made by Tweeten Fibre Co., Inc., 2031 Fulton St., Chicago 12, Ill., combines the features of soft-lead pencils, grease pencils, paint sticks, and crayons. It is said to mark any surface under any condition. Materials that can be marked are fabrics, paper, wood, rubber, plastic, glass, metal, stone, and cement. The pencil marks wet and dry surfaces.

Circle T-48 on Reader-Service Card

A message to TEXTILE INDUSTRY MANAGEMENT

Here's how you can use

STRATEGIC PURCHASING

to help your company maintain a sound competitive position

As profit margins tighten, your purchasing strategy becomes a vital force for success.

The way you purchase heavy chemicals, for instance, can influence your company's profits in the years ahead.

So it becomes increasingly important for you to seek every possible economic advantage when you select a chemical supplier.

Here, for example, are a few things to look for, when deciding on a source for caustic soda and other chemicals:

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants located on deep water may be able to offer you a choice of rail or water delivery. This can insure you steady supply, in case of rail service interruption.

2. Engineering help. A supplier's engineering staff can often be valuable to you when you are setting up a new chemical process or caustic handling system—not only with advice, but with actual design assistance.

3. Smooth processing. You'll find it helpful to work with the supplier's technical service men who visit you periodically. Often these men can spot potential problems and ward them off before they cause you trouble.

4. Safety programs. Your men can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on safe handling of chemicals.

5. Economy. Choose a supplier who wants to help you cut your operating costs; who will go all the way with you in arriving at the best, most advantageous method of shipping and handling for your conditions.

6. Experience. Above all, choose a supplier who is familiar with your industry. It takes years of experience to acquire an understanding of the problems you face, and the know-how to help you solve them quickly and economically.

Are you getting your fair share of these strategic purchasing advantages?

Many of our customers in the textile industry feel that they get these advantages in buying from Hooker, a supplier of basic chemical materials to industry for fifty years.

In the light of the growing importance of these factors, isn't this a good time to review your policies on sources of chemical supply?

5-699

HOOKER CHEMICALS

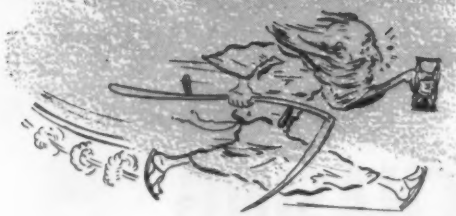
1905—Half a Century of Chemicals
From the Salt of the Earth—1955

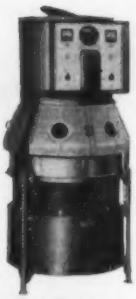
HOOKER ELECTROCHEMICAL COMPANY

4 Forty-seventh Street, Niagara Falls, N. Y.

NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

Time passes swiftly in ATLAS-OMETERS





FADE-OMETER
Standard testing machine for the reaction of sunlight on materials.

Fading, and the destructive effects of sunlight on dyestuff and fabrics can be pre-determined in the Fade-Ometer by recognized standard test programs. Years of exposure are duplicated by a few days of testing with intensified light cycles in this machine.

The permanence of dyestuff and the washability of fabrics under repeated laundering with various detergents are determined with reliable accuracy in the Launder-Ometer.

Both the Fade-Ometer and Launder-Ometer are used for research and for quality control in production.

LAUNDER-OMETER
Standard testing machine of the A.A.T.C.C.

Sales representatives in principal cities throughout the world

ATLAS ELECTRIC DEVICES CO.
4114 N. Ravenswood Ave., Chicago 13, Ill., U.S.A.

---

a Perfect Pair "WHERE Good Connections COUNT"®

Here is the combination which is delivering the ultimate in economy and accurate control of steam flow to cylinders on slashers, dry cans, embossers, calenders, etc. Outlasts all others.

The Rotary Union*—The self-aligning and self-adjusting ball bearing mechanical sealing unit that provides a positive rotating seal.

Unitrap*—The only steam trap that *automatically* delivers peak efficiency at all pressures from 0 to 250 lbs. Warms up fast —saves steam.

Contact our nearest office for full information on this incomparable combination.

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Camden, N. J.
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Los Angeles
Providence
Montreal
Toronto

*Patented—Trade Name

PERFECTING SERVICE CO.
(Home Office and Factory)
332 Atando Ave. Charlotte, N. C.

Fog Nozzles

Fog nozzles for fixed fire protection and other industrial applications have been announced by Bete Fog Nozzle, Inc., 309 Wells St., Greenfield, Mass. The nozzles are claimed to combine low cost, high resistance to clogging, simplicity of design, long reach of the fog pattern, and uniform atomization. The nozzles are made from one small piece of $\frac{7}{8}$-in. hexagon-shaped metal and have no internal parts. Over-all length is $2\frac{1}{2}$ ins. The brass nozzle costs $5. Other patterns sell for $5.90 and $7.80.

Circle T-49 on Reader-Service Card

Masking Tape

A new black crepe-paper masking tape is now available from Permacel Tape Corp., New Brunswick, N. J. Constructed with a transparent adhesive and semigloss flattened crepe backing, the tape is designed for all-purpose use in plant work. The smooth backing combined with easy release from the roll makes for simple application without finger abrasion.

Circle T-50 on Reader-Service Card

Meter Measures Small Flows

Brooks Rotameter Co., Lansdale, Pa., has developed a meter to measure small flows of liquids or gases. The instrument is said to be easy to assemble and disassemble. Tubes are easily removed for cleaning or replacement without disassembling the meter, and end fittings can be rotated at 90° intervals to facilitate piping and mounting. All units are readily adaptable to panel mounting.

Circle T-51 on Reader-Service Card

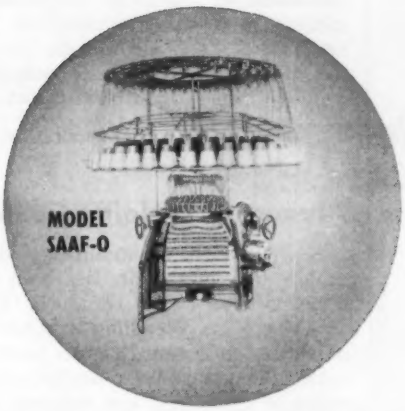
Heavy-Duty Switch

A new low-force heavy-duty limit switch, which can be operated with only $2\frac{1}{2}$ oz. of force, has been announced by Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill. The switch is designed for use on counting devices or similar applications that require heavy-duty switches with light operating force.

Circle T-52 on Reader-Service Card

Rectangular Instruments

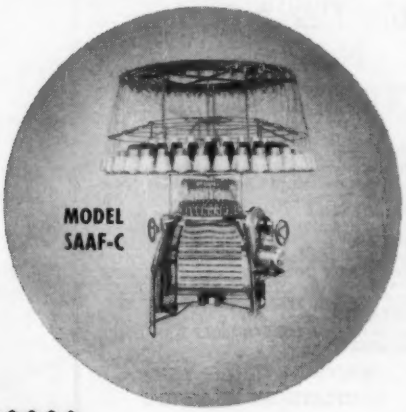
Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J., has developed the Model



These features make SUPREME

the latest word in modernized, low-cost knitting

of automatic, variable striped, patterned or solid jersey *with* or *without* knit-on simulated rib trim and draw thread section separators



HIGH SPEED PRODUCTION

Large number of feeds, rugged construction and stationary yarnstand give you vari-striped and patterned fabrics at unprecedented rates. Standard 26" machine has 32 four color striping boxes — 32 three position pattern wheels—32 automatic pattern placers.

TREMENDOUS VERSATILITY

Striping boxes, pattern wheels and placers on every feed let you pour out an infinite variety of striking, multi-colored fabrics — with pattern inserts twice the size previously possible. Knit a wide variety of fabric construction and textures with virtually any type of natural or synthetic yarn.

HIGH QUALITY AT LOW COST

Knitting efficiency and quality are insured by these ingenious new features—128 cone, "step-design" (Pat. Pend.) yarnstand, new knitting elements system, new striping box with easy, manual setting, new pattern placer with slideable studs for fingertip control and new, scissor-type, synchronized "no-waste" cutters.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom:
The Mallusk Co., 711 S. Tryon St. Charlotte, N. C.

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SUPREME'S NEW "PAY-AS-YOU-DEPRECIATE" FINANCING PLANS
The PAYD Plan

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PAGE chain link FENCE
America's First Wire Fence—since 1883

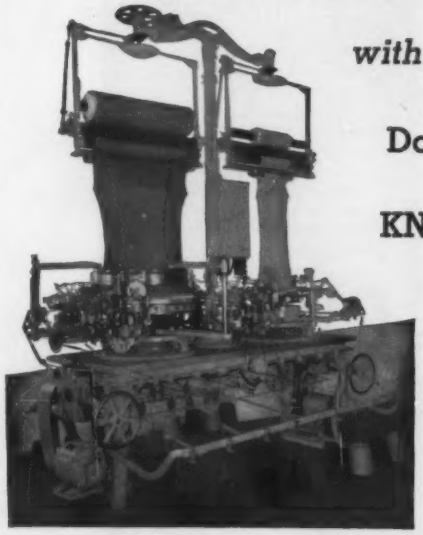
• You need a fence if your property lacks protection against common hazards. And you certainly want time-tested quality in the safeguard you provide. Whether you choose heavily galvanized Copper-Bearing Steel, corrosion-resisting Aluminum, or long-lasting Stainless Steel, PAGE Fence is quality controlled from raw metal to rugged fence erected on metal posts deep-set in concrete. Available are 8 basic styles, varied by heights, types of gates, top rails, and barbed wire strands for added security. Finally, your PAGE Fence will be expertly erected by a reliable, technically trained firm. For important fence data and name of nearest PAGE firm—

Write to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia or San Francisco

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE COMPANY, INC.

ACTUAL MILL OPERATIONS SHOW

BIG WEEKLY SAVING PER OPERATOR



with installation of NEW
TOMPKINS D-2
Double Head Spring Needle
KNITTING MACHINE

New stop motions and furnishing wheels provide the profitable answer to reducing cloth imperfections and needle breakage—imperfections are caught before they get into the cloth! Actual installations are showing remarkable savings in knitting various types of material. SOME MILLS CLAIM THEY HAVE CUT PRODUCTION COSTS IN HALF . . . OTHERS REPORT SAVINGS UP TO $600.00 PER WEEK PER OPERATOR, over old machines. All this PLUS AN IMPROVEMENT IN FABRIC QUALITY!

WRITE OR PHONE FOR COMPLETE INFORMATION

LET US SHOW YOU THIS MONEY-MAKING MACHINE IN PRODUCTION

OTHER TOMPKINS MACHINES
BEEF BAG KNITTER | HOCKEY CAP KNITTER | MULTIPLE FEED KNITTER

TOMPKINS BROS. CO. • Syracuse 4, N. Y.

1331 line of flush rectangular instruments that incorporate the Weston self-shielder Cormag movement, which eliminates all intereffect when instruments are mounted closely on the same panel. The instruments can be mounted on magnetic or nonmagnetic panels without special adjustment.

Circle T-53 on Reader-Service Card

Aluminum Welding Cable

A lightweight aluminum welding cable called Tweco-Lite has been announced by Tweco Products Co., Wichita, Kan. Weighing only half as much as conventional copper welding cables, the new cable has flexibility that makes it easier and less tiresome for the welders to do their jobs. The cable is conveniently packaged in precut 50-and 100-ft. lengths. It is also available in 250- and 500-ft. coils as well as 1,000-ft. reels.

Circle T-54 on Reader-Service Card

Tachometer Take-Off Head

Metron Instrument Co., 432 Lincoln St., Denver 3, Colo., has developed a take-off head for stationary tachometers. The unit is adapted for continuous-duty industrial use where ruggedness counts. The take-off heads cover speed ranges between 100 and 5,000 rpm. for full-scale readings on any stationary Metron tachometer indicator. The head transmits a current, exactly linear with the stretch to speed, that is measured on any centrally located Metron indicator either nearby or up to 1,000 ft. away. The sensing element requires very little operating torque.

Circle T-55 on Reader-Service Card

Time-Delay Relay

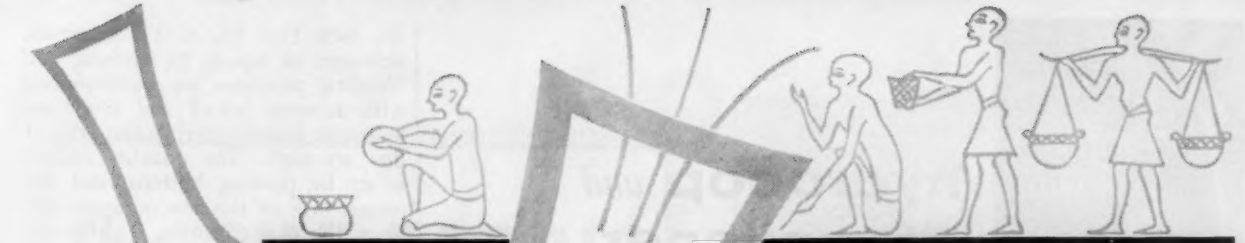
A'G'A Div., Elastic Stop Nut Corp. of America, Elizabeth, N. J., has developed a time-delay relay with an instant-action auxiliary switch to allow push-button control. The time delay of the instrument, called the NEL Agastat, is pneumatically controlled and provides a readily adjusted and accurate timing interval from 0.1 sec. to 10 or more minutes.

Circle T-56 on Reader-Service Card

Control for Liquids

Two Auto-Stop meters with double-trip valves for positive control of industrial liquids have been developed by Neptune Meter Co., 19 W. 40th

St., New York 16, N. Y. Automatic



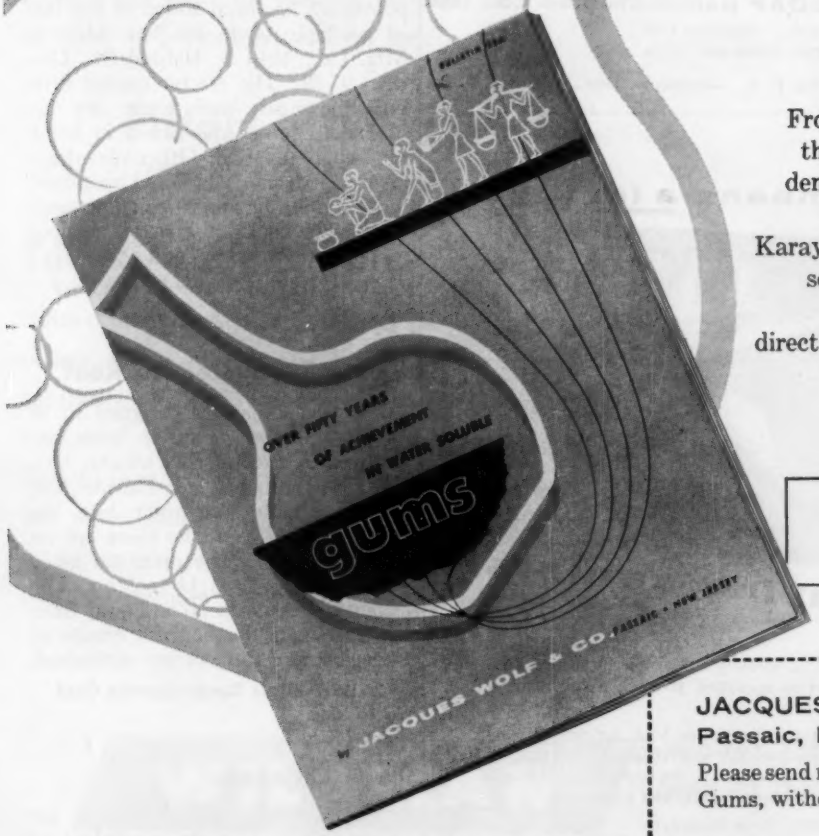
NOW AVAILABLE

Fascinating Booklet Tells

The Story of Water Soluble Gums

for the Textile Industry

From strange and exotic countries come the natural gums which are in greatest demand for textile processing in modern America. Gum Arabic, Tragacanth, Karaya, Irish Moss, and Locust Bean . . . some transported half way around the world to you by Jacques Wolf, direct importers of gums for over 50 years.



JACQUES WOLF & CO.
Chemicals PASSAIC, N.J.

Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

The fascinating story of the history, characteristics, and uses of these famous gums used for textile processing is presented in this booklet. Jacques Wolf is happy to offer this booklet as a service to all users of chemicals without obligation.

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JACQUES WOLF & CO.
Passaic, New Jersey

Please send me your new booklet on Water Soluble Gums, without obligation, of course.

Name..... Title.....
Firm.....
Address.....
City..... Zone.... State.....

hydrocop *and* 3b softener

Use this efficient—time proven—emulsion combination from your winder emulsion troughs and profit from a new high in quality, luster and softness. HYDROCOP and 3B SOFTENER will help you to obtain increased production of smooth, more even running, more easily knit yarns.

HYDROCOP and **3B SOFTENER** speed up the conditioning of greige, dyed or bleached yarns; cotton; woolen, worsted and cashmere; orlon; nylon; rayon and blends. Produced from first quality vegetable oils and non-mineral waxes which insure dependable performance, HYDROCOP and 3B SOFTENER are highly resistant to aging and discoloration, and do not cause shade change.

CHENILLE YARNS—Hydrocop—used with Mildant RX—will produce perfectly conditioned, smooth running, mildew resistant chenille yarns.

let us send you samples and more information.

LAUREL SOAP MANUFACTURING CO., INC.
Wm. H. Bertolet's Sons · established 1909
2608 East Tioga Street, Philadelphia 34, Pa.

Warehouses: Paterson, N. J., Chattanooga, Tenn., Charlotte, N. C.

what *they do* means a lot to you

when buying coolers!

Testing . . . testing . . . testing . . . that's the secret of the longer life and trouble-free operation you can expect from a Halsey Taylor Electric Cooler.

Here you see men testing, hour after hour, for capacity, for leakage, for accuracy of temperature and refrigerant controls, for correct setting of expansion valves . . . *for every factor that can mean the difference between dependability and uncertainty!*

That's why the Halsey Taylor nameplate is your guide to performance, no matter what type of cooler or fountain you buy!

HALSEY TAYLOR

THE HALSEY W. TAYLOR CO., WARREN, OHIO

TW-12

St., New York 16, N. Y. Automatic deliveries of liquids to batching and blending processes are accomplished with accurate cut-off and minimum hydraulic hammer even when rates of flow are high. The quantity desired is set by pushing buttons, and the meters shut off the flow automatically when the exact quantity is delivered.

Circle T-57 on Reader-Service Card

Industrial Alarm

The Scam model SC-10 annunciator, designed to provide a compact, self-contained annunciator that is low in cost, offers the flexibility and features most commonly required in industrial alarm systems. The device is made by Scam Instrument Corp., 3909 W. Irving Park, Chicago 18, Ill. The circuits require one relay per alarm station.

Circle T-58 on Reader-Service Card

Liquid-Petroleum Tractor

A tractor that operates on liquid petroleum has been added to the line of products made by The Mercury Mfg. Co., 4044 S. Halsted St., Chicago 9, Ill. The tractor creates little poisonous gas, and there are no obnoxious fumes and smoke in buildings where it's used. Other advantages are easier starting, smoother operation, long engine life, and low maintenance costs. The fuel tank can be changed in only a few minutes.

Circle T-59 on Reader-Service Card

Power Exhauster for Roof

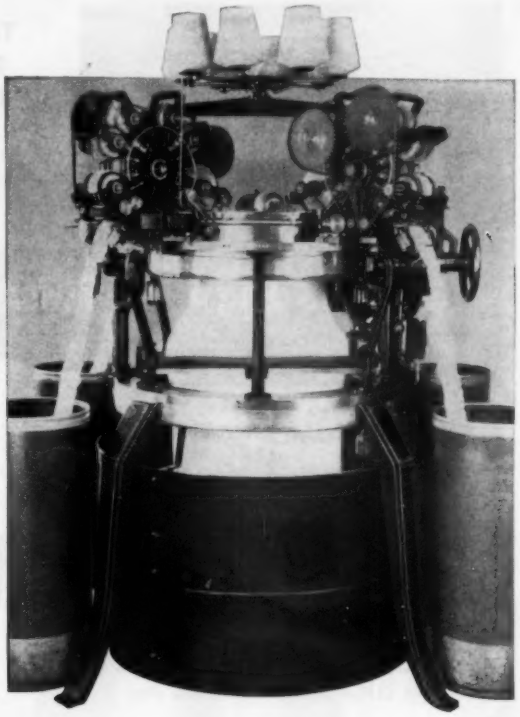
A power exhauster designed to fit on a building roof has been announced by Proctor & Schwartz, Inc., 7th St. & Tabor Road, Philadelphia, Pa. The motor fits right into the exhauster, and therefore there are no belts or pulleys. The units are made in four models from 1½ to 5 hp. The exhaust air is blown up and away from the roof, and the harmful effects of fumes on roof surfaces are minimized.

Circle T-60 on Reader-Service Card

Tube Cleaners

An electrically driven cleaner for air-conditioning condenser tubes of ¾- to ⅞-in. dia. is announced by Thomas C. Wilson, Inc., Long Island City, N. Y. The tool removes algae, slime, and mud deposits rapidly. The lightweight portable machine has a carrying handle and built-in base. It

This PILE FABRIC KNITTING MACHINE *is a* *Smart Operator!*



There's a big and growing market for fleecy, fur-like, high-pile fabric—and here's the machine that can supply it at the rate of 5 yds. of 54-inch material per hour!

HIGH PILE FABRIC KNITTING MACHINE

Takes Any Type and Size of Staple

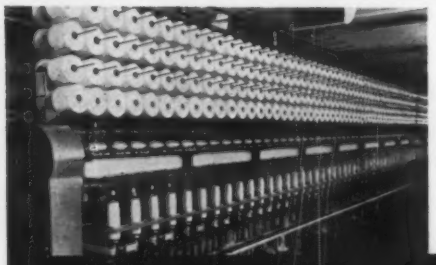
Natural fibers as well as Orlon, Nylon, Rayon, Acrilan, Dynel or any other synthetics by themselves or in combinations with natural fibers. Staple size can range from ¾ inches and up—producing an almost unlimited number of fleecy and fur-like fabrics. Depth of pile is determined by the size of staple fed into the carding attachment . . . We will gladly arrange for a demonstration of this profit-building machine at your convenience. Inquire today for complete technical details.

WILDMAN

makes the machines that tend to their own knitting.

WILDMAN MFG. COMPANY, NORRISTOWN, PA.

Manufacturers of: **FULL FASHIONED HOSIERY MACHINES; CIRCULAR MACHINES FOR OUTERWEAR, UNDERWEAR, SPORTSWEAR, TRIMMINGS; STOP MOTIONS**



Tops for Cotton Tire Cord Paper

COLLINS Big Ring Twisters =

Big Packages Clean Knotless Yarn at Higher Speed ...Low Cost

Collins Big Ring Twisters produce 4 to 12 lb. packages of exceptionally clean knotless yarns, when employing a 6 to 8 in. ring size.

High Speeds are possible because Collins Big Ring Twisters are equipped with large diameter pulleys, anti-friction idlers, ball bearing front roller stands, large diameter feed rolls, and roller bearing spindles.

Low Cost is achieved through increased twisting and winding efficiency. *Quality* is inherent in big packages of knotless yarns. Write for full information on Collins Big Ring Twisters and Collins convenient financing plan.

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647 Roosevelt Ave., Pawtucket, R. I., Est. 1866
CHARLOTTE • CHICAGO • TORONTO

There is a Collins Twister for Every Ply Yarn Construction

BUILT TO STAND THE GAFF

Now more than ever before with the many new types of synthetics it's important that bobbins be designed in every detail to fit specific needs of the user, then built to exacting specifications.

The Allentown Bobbin Works is a custom "shop" on a production line basis. You can have the individual variations your production requires at cost of a "standard" product.

All types of bobbins for fine yarn processing designed and built to fit your needs.

Brass bushings are now standard for all straight spindle bobbins.

BW MACK

ALLENTOWN BOBBIN WORKS, INC.
ALLENTOWN PENNSYLVANIA

TAKE-UP BOBBIN—BAKELITE BARREL, ALUMINUM HEAD.

WINDER-SPINNER BOBBIN - BAKELITE BARREL AND BUSHINGS, FIBER HEAD.

TWISTER BOBBIN—ALL BAKELITE BARREL AND HEAD—BRASS BUSHINGS FOR STRAIGHT SPINDLES.

HEADLESS PACKAGES IN SEVERAL TYPES OF ALL BAKELITE CONSTRUCTION.

SHIPPING BOBBIN—MAPLE BARREL, FIBER HEAD.

is powered by a ¼-hp., 3,450-rpm. single-phase motor in 110 or 220 a.c. v. The flexible shafts and metallic casings are available for several tube sizes.

Circle T-61 on Reader-Service Card

Water-Hardness Tester

A pocket-size kit that measures water hardness to the nearest 0.2 grains per gal. has been announced by Calgon, Inc., 323 Fourth Ave., Pittsburgh, Pa. Designed for use on spot-checks by nontechnical personnel, the kit includes a 1-oz. dropper bottle of reagent and a sample vial. The test is made by adding the reagent drop-by-drop until the water sample changes from pink (at the first drop) to blue. The number of drops required to bring about the color change is an indication of the degree of water hardness.

Circle T-62 on Reader-Service Card

Gas-Oil Burners

Six models of gas-and-oil combination burners are being offered by Cleaver-Brooks Co., 326 E. Keefe Ave., Milwaukee 12, Wis., at prices 30 to 40% lower than previous models. The burner capacities range from 720,000 to 8,600,000 Btus. The models can be used for gas, for light oil (No. 2 grade) and gas, and for a combination of heavy oil (No. 5 grade) and gas. Burner operation is automatic; you just flip a switch.

Circle T-63 on Reader-Service Card

Research Model Demineralizer

A laboratory model demineralizer unit is being offered by Barnstead Still & Sterilizer Co., 180 Lanesville Terrace, Forest Hills, Boston 31, Mass. The complete unit consists of two Lucite ion-exchange columns and 12 sample jars containing five cationic resins and seven anionic resins. A 100-page manual that contains technical data on ion-exchange resins and instructions on operating the unit is included.

Circle T-64 on Reader-Service Card

Folding Step Ladder

A three-step folding step ladder that weighs only 18 lbs. has been added to the products made by Ballymore Co., Wayne, Pa. The ladder provides safety for working levels up to 7 ft. 6 ins.

Circle T-65 on Reader-Service Card

Wherever starches are used

Vacuum-Cleaner Filter

the weaver's friend

A KEESTAR KEE PRODUCT

VICTOR Mill Starch

because it's always uniform
and backed by Keever service

Charles C. Switzer, Vice President
TEXTILE SALES DIVISION
1200 S. C. NATIONAL BANK BLDG.
GREENVILLE, SOUTH CAROLINA

THE KEEVER STARCH CO. ★ GENERAL OFFICES ★ COLUMBUS 15, OHIO
Processors of corn, wheat and blended starches for industry since 1898

 For more information, write direct or use Reader-Service post card.

Wherever starches are used— Penford Gums give superior results!

WARP SIZING—The wide variety of viscosities afforded by PENFORD GUMS permits their use in:

combed yarns,
spun rayon warps,
spun rayon—acetate blends,
hydrophobic fibers,
worsted fibers,
blends of hydrophobic and other fibers.

TEXTILE FINISHING—The many types of Penford Gums available and their ease of reactivity with resins make them suitable for all phases of textile finishing.

CORD POLISHING AND THREAD GLAZING—PENFORD GUMS' characteristics of non-congealing and forming smooth continuous flexible films enable their extensive use in these operations.

To assist textile finishers and processors Penick & Ford's Technical Sales Service Engineers offer their services. They will be glad to advise you as to which PENFORD GUMS are the best for your particular requirements and equipment. PENICK & FORD, LTD., INC., 420 Lexington Avenue, New York 17, N. Y., 1531 Marietta Blvd., Atlanta, Georgia; Cedar Rapids, Iowa; 18 California Street, San Francisco 11, Calif.

U. S. Patent Nos: 2,516,632; 2,516,633; 2,516,634

Send for helpful new brochure!

Penford Gums

Bemis Laminated Shipping Covers save you labor—time—money...and *protect* your carpets and rugs

Sealing a Bemis cover is fast and simple. A latex adhesive is brushed through the pores of the uncoated burlap overlap, forming a strong seal. Ends of the cover are wire-tied.

The Big Bemis Family of Products Serving the Carpet and Textile Industry

Laminated Waterproof Yardage, Sheets, Tubing and Bale Caps—Tite-Fit Tubing (spiral-sewn burlap tubing with 2-way stretch)—Paper Rug Covers (cut packaging time as much as 50 percent)—Burlap Piece Goods (mixed carloads in wide assortments of widths and lengths)—Polyethylene Packaging (the modern sales packaging).

Bemis

111 No. 4th St., Box 32
St. Louis 2, Missouri

Vacuum-Cleaner Filter

A filter to be used with its line of vacuum cleaners has been announced by Kerker Peterson Hixon Hayes, Inc., 2855 Park Ave., Minneapolis 7, Minn. The cloth filter permits greater circulation of air in vacuum cleaners with self-contained motors. This feature allows cooler motor operation and produces longer motor life.

Circle T-66 on Reader-Service Card

Electric Lift Truck

A 3,000-lb.-capacity electric-powered fork truck to be used in narrow aisles and confined areas has been introduced by Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio. The truck provides great visibility for the driver, heavy-duty parts, and hydraulic wheel brakes.

Circle T-67 on Reader-Service Card

Dock Bumpers

Rubber dock bumpers to protect trucks and buildings are made by Karl A. Herman Co., 412 Fuller Ave., N. E., Grand Rapids, Mich. The bumpers are made up in any size to suit your needs. A 4x4-ft. section, for example, costs $11.80.

Circle T-68 on Reader-Service Card

Two-Platform Lift Truck

A lift truck with two independently operated platforms to handle two skids at once is manufactured by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. The platforms can be separated to a maximum vertical distance of 62 ins. The upper platform fits over the lower one and, in its lowered position, gives the appearance of a single-platform truck.

Circle T-69 on Reader-Service Card

Hand Truck for Pallets

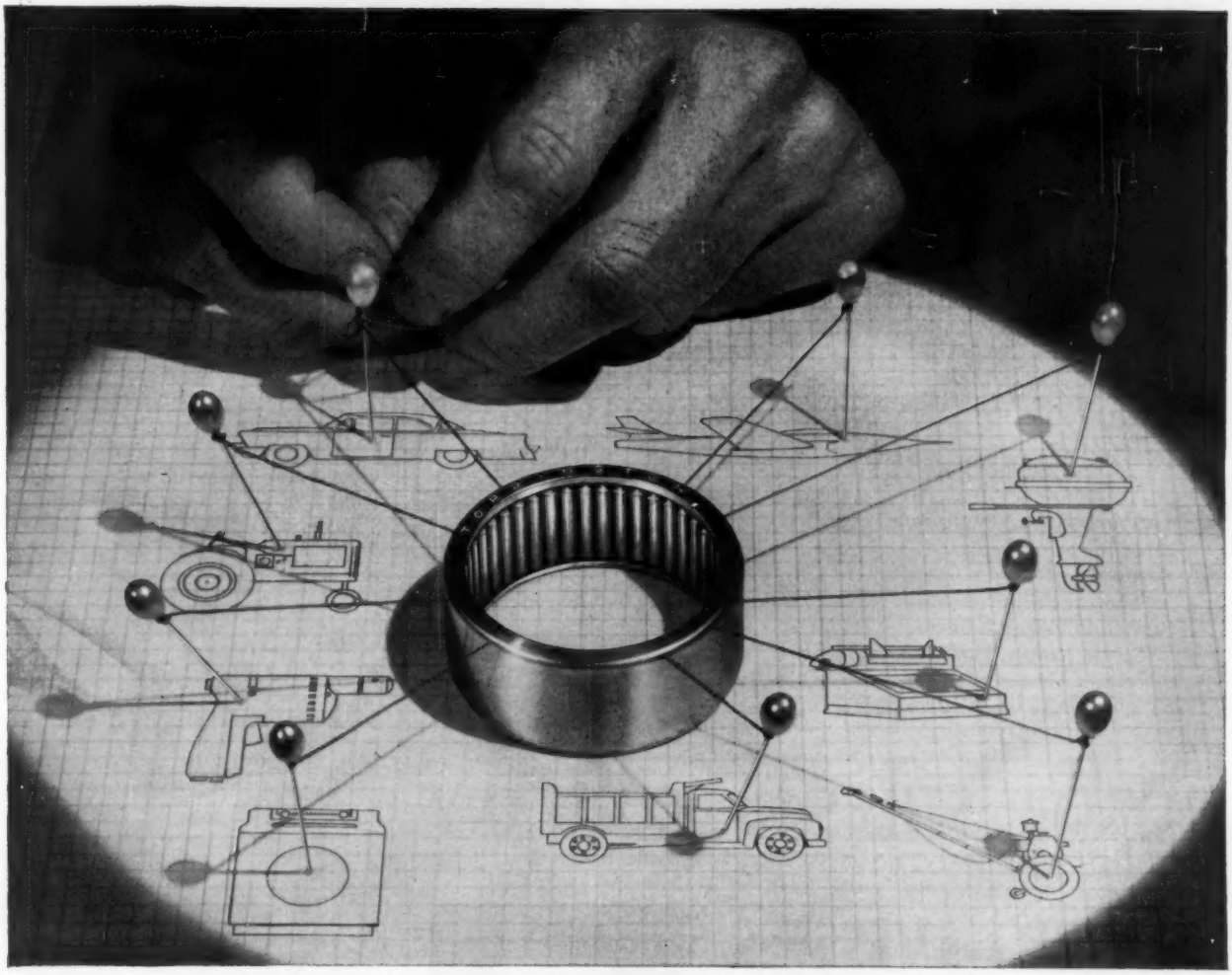
A hand truck for quick handling of pallets and other light loads has been made available by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia, Pa. The truck is built to handle loads up to 1,000 lbs.

Circle T-70 on Reader-Service Card

Stop Water Leaks

Excessive water seepage through expansion joints in water reservoirs can be stopped by a coating based on Bakelite vinyl resins. The material is made by Bakelite Co., Div. of Union Carbide & Carbon Corp., 260 Madison Ave., New York 16, N. Y.

Circle T-71 on Reader-Service Card



"The **TORRINGTON Needle Bearing** *is Versatile"*

It can whip friction in one of our newest jet fighters at terrific altitudes and speeds. It can pitch in and help a Kansas farmer cut his wheat. Or it can help your wife park the family car in a tight spot without a struggle.

Wherever the Torrington Needle Bearing is put to work, its unique combination of high radial load capacity and small size enables designers and manufacturers to make their products stronger, lighter and more compact. That's why this versatile bearing has become "standard equipment" in thousands of products throughout industry.

In the twenty years that the Needle Bearing has been made, Torrington's Engineering Department has accumulated many lifetimes of experience in adapting the bearing's advantages to products as diverse in size and use as adding machines and tractors. We are always glad to make this experience available to you. *It can be obtained nowhere else.*

See our new Needle Bearing Catalog in the 1955 Sweet's Product Design File— or write direct for a catalog.

THE TORRINGTON COMPANY
Torrington, Conn. • South Bend 21, Ind.

These features make the **TORRINGTON NEEDLE BEARING** *unique*

- low coefficient of starting and running friction
- full complement of rollers
- unequalled radial load capacity
- low unit cost
- long service life
- compactness and light weight
- runs directly on hardened shafts
- permits larger and stiffer shafts

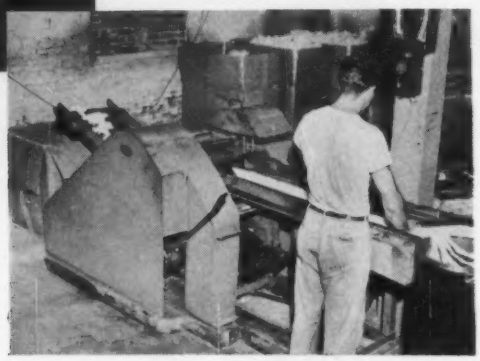
District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON *NEEDLE* **BEARINGS**

Needle • Spherical Roller • Tapered Roller • Cylindrical Roller • Ball • Needle Rollers

Cut Tow

Into 3/4" — 6"
STAPLE LENGTHS



You can readily cut nylon, rayon and other synthetic or natural fiber tow, rove or sliver into uniform lengths on Taylor Stiles Staple Cutters.

The operation is continuous, the rate depending on the size of tow and the length of cut.

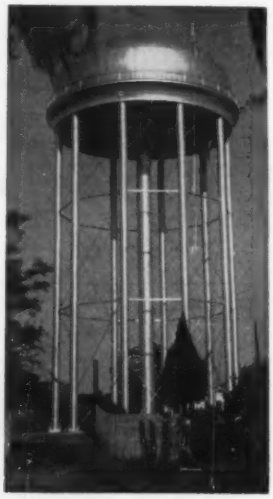
Staple lengths varying from ¾" to 6" are produced on these machines. Changes in length are quickly made by means of a varispeed motor, or by changing sprockets when variations in staple lengths are infrequent.

Write today for complete details.

TAYLOR STILES & COMPANY

15 Bridge Street Riegelsville, New Jersey

TANKS AND VESSELS FOR THE TEXTILE INDUSTRY



● COLE builds elevated tanks and vessels to your specifications — dye-vats, kiers, starch-kettles, acid tanks, jib-boxes, or other processing vessels for the finishing and dyeing industry . . . in stainless steel, nickel-clad steel, or of standard steel lined with Monel metal.

Our long experience in the design and fabrication of vessels for the textile industry may be of help to you. Write for latest COLE catalog—*Tank Talk.*

Established 1854

R. D. COLE Manufacturing Co., Newnan, Ga.

- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

Plumber's Truck

An electric truck for such jobs as transporting plumber's equipment and other maintenance equipment to production departments of a plant is made by Stokvis Edera & Co., Inc., 18 Secatoag Ave., Port Washington, L. I., N. Y. The platform truck costs only $505.

Circle T-72 on Reader-Service Card

Dock Board That Moves

An adjustable dock board that sells for $395 is made by Karl A. Herman Co., 412 Fuller Ave., N. E., Grand Rapids, Mich., The dock board provides a safe bridge between a carrier and dock. The board has a positive-geared counterweight action to raise or lower the dock easily. The dock can also be shifted sideways 10 ins.

Circle T-73 on Reader-Service Card

Pressed Wool Felt

Pressed wool felt die-cut into various forms for such uses as filters for oil reservoirs to retain the lubricant are made by The Felters Co., 234 South St., Boston 11, Mass. The material is made in a wide range of densities and composition, which make it suitable for cooling units, polishing pads for floor machines, etc. in addition to the regular uses as mounting pads.

Circle T-74 on Reader-Service Card

Quality-Control Chart

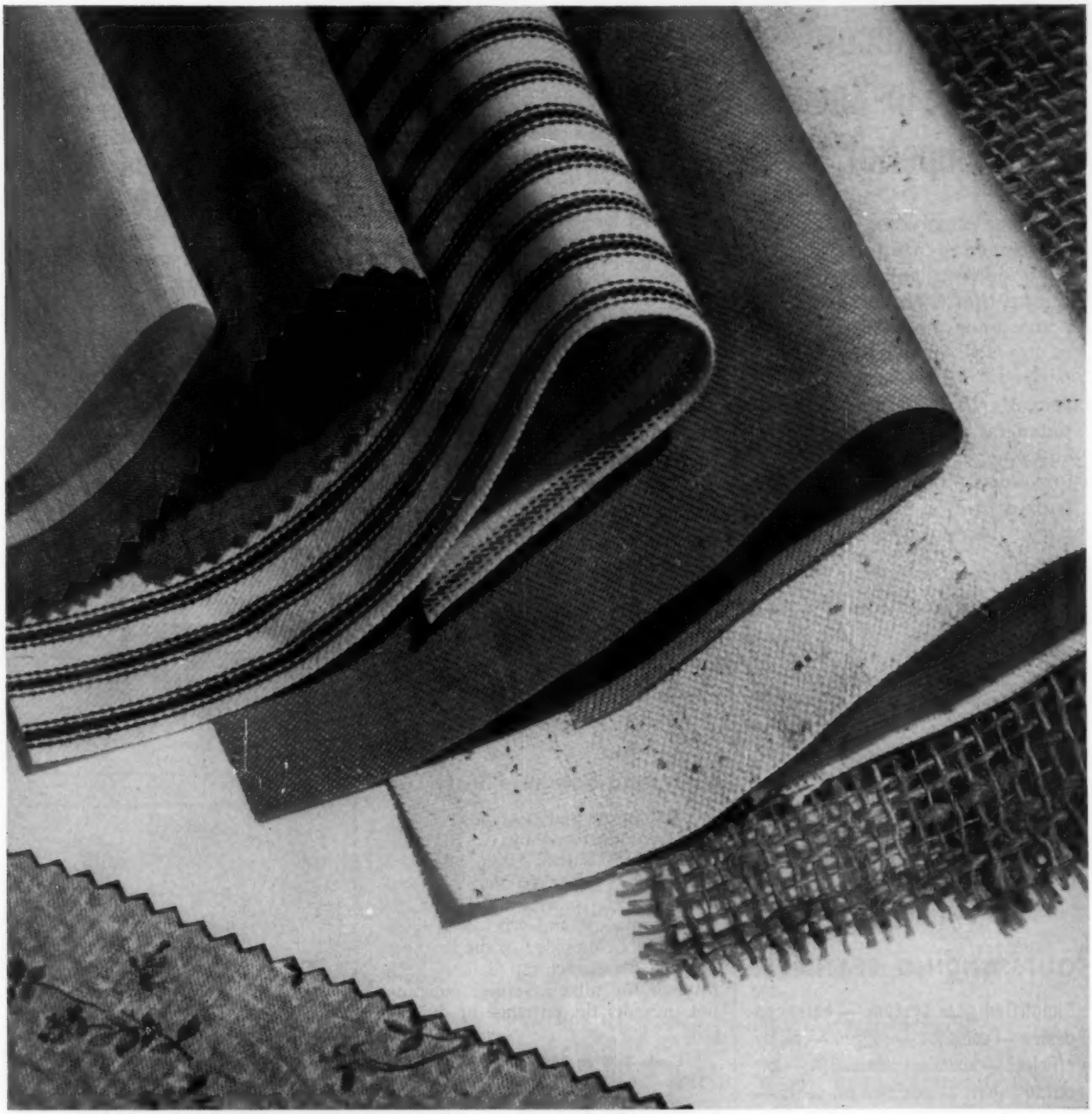
Production and quality levels of individual workers are raised by a chart made of Bakelite rigid vinyl sheet and distributed by R. G. Bock Engineers, 1937 Irving Park Rd., Chicago 13, Ill. The chart is posted in clear view of the worker and tells him the exact quality level of his output.

Circle T-75 on Reader-Service Card

Diaphragm Control Valves

A new line of diaphragm control valves designed for medium-duty applications has been announced by Minneapolis-Honeywell Regulator Co., Philadelphia, Pa. The new valves, designated Series 400, incorporate a number of engineering design improvements to provide improved flow characteristics. The line includes double-seated, single-seated, and three-way types for use in either on-off or proportional-control systems.

Circle T-76 on Reader-Service Card



UNIFORM FINISHING with GLOBE® starches and gums

Your fabric finishing problems are reduced when you use finishing sizes made with Globe Brand Starches and Gums. These products are manufactured to exacting specifications. Globe Brand Starches and Gums have greater uniformity and stability of viscosity, enabling the mill to maintain high finishing standards at minimum cost. Quick deliveries of Globe products can be made to any plant location.

Our research staff is constantly at work developing superior finishing products especially for your needs.

We welcome an opportunity to help you with specific production problems. There is no cost or obligation. Write today.

GLOBE BRAND

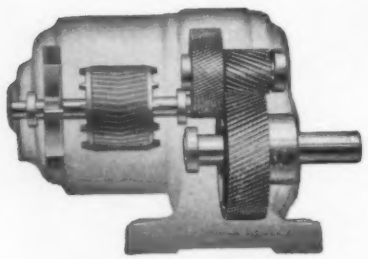
STARCHES
GUMS AND
DEXTRINES

CORN PRODUCTS REFINING COMPANY · 17 Battery Place, New York 4, N. Y.

Plant Record Proves Slo-Speeds Superior

Our first experience with a few Slo-Speed geared motors on narrow fabric looms was so successful that there is now a preponderance of Slo-Speed Motors in our mill, writes A. H. Geilenberg of J. M. Geilenberg & Son, Inc., Marlboro, N. H. We eliminated oil leaks found in other equipment... we required less installation space... and severe loom vibration has not affected performance of your Slo-Speeds.

STERLING SLO-SPEED



OUTSTANDING FEATURES:

Simplified gear system — balanced design — compact — rugged — highly efficient — abundant lubrication — low output shaft — positive oil seals — Herringbone Rotor — protected — streamlined — direct through ventilation — quiet operation — AGMA speeds — extremely long life — every unit will operate in any position.

20-page illustrated catalog... Sterling Speed-Trol, Slo-Speed, Klosd and Klosd-Tite Electric Power Drives. Write for catalog No. 210.

STERLING
ELECTRIC MOTORS

Plants: New York City 51; Chicago 35; Los Angeles 22; Hamilton, Canada; Santiago, Chile
Offices and distributors in all principal cities

Valves for Dangerous Applications

The Ultravalve, with features of special valves used for dangerous applications, is now the Standard 1000 Series of the Hammel-Dahl Co., Providence, R. I. Three body types are offered: Offset, angle, or inline. The offset body design provides complete self-drainability that is essential where toxic or corrosive substances are handled.

Circle T-77 on Reader-Service Card

Circuit Breaker

A new two-pole common-trip circuit breaker for panel boards and load centers has been announced by General Electric Co., Plainville, Conn. Designated Type TQL, the new 2-in. breaker consists of two pole units with an interlocking trip mechanism assembled as a single unit. It will fit load centers or panel boards designed to take 1-in. Type R or Type TQL circuit breakers. The two-pole TQL is available in six ratings from 10 to 50 amps. for 120- to 240-v. a.c. operation.

Circle T-78 on Reader-Service Card

Improved Solenoid Valve

The inexpensive O-type solenoid valve manufactured by C. B. Hunt & Son, Inc., Salem, Ohio, has been improved by changes that are said to effectively protect all operating parts from dust and grit. A sintered bronze filter, provided in the breather hole of the spring cap, lets air pass through the filter in either direction but prevents the entrance of dust or grit.

Circle T-79 on Reader-Service Card

Rotary Coder

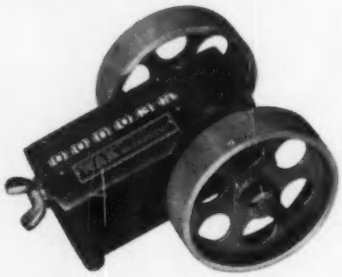
A machine for imprinting identification on boxes, cartons, packages, or other surfaces has been developed by Krengel Mfg. Co., New York, N. Y. A self-inking feature provides clean, sharp impressions. Rubber type, set in the unit by hand, is available in all point sizes and fonts in sets of letters or figures, deep-cut for sharpness and long service.

Circle T-80 on Reader-Service Card

Quick-Sticking Tape

A pressure-sensitive general-purpose paper tape with a quick-sticking adhesive has been developed by Behr-Manning Div., Norton Co., Troy, N. Y. The tape was designed to save

YOU CAN COUNT ON WAK* COUNTERS



Hank Clocks	Hosiery Counters
Rotary Counters	Pairing Counters
Tenter Counters	Yardage Counters
Inspection Counters	Slasher Counters
Pick Clocks	Sewing Counters
Twister Clocks	Special Counters

* T.M. Reg. U. S. Pat. Office

See Our Representative, or Inquire Direct

WAK INDUSTRIES
1814 S. TRYON ST.
CHARLOTTE, NORTH CAROLINA

"WHEN YOU THINK OF FEEDERS-

-YOU THINK OF-

HARWOOD"

Geo. S. HARWOOD & Son
50 Lagrange St., Worcester 8, Mass.

Automatic Winders for Rewound Filling

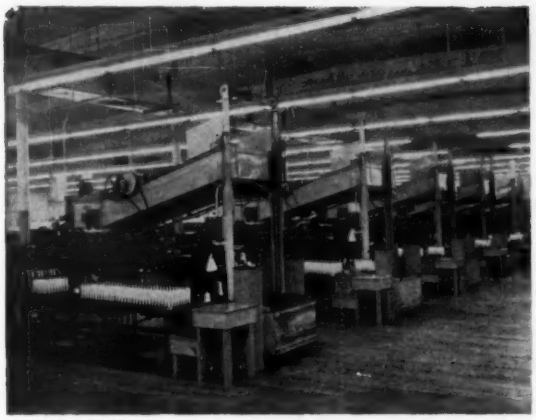
to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



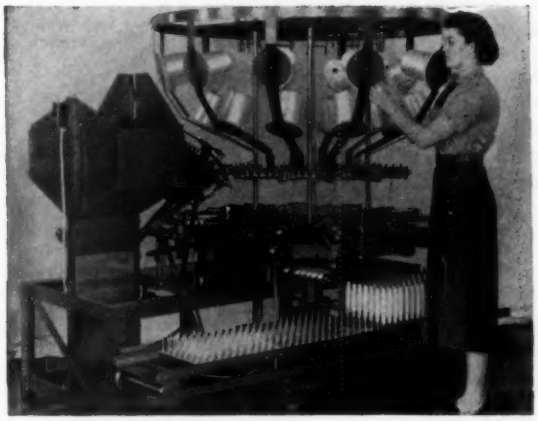
Abbott Traveling Spindle Automatic Quillers

For winding cotton, spun rayon, worsted, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

For rewinding woolen yarn from mule and ring frames.

For winding filament rayon and nylon, etc., with automatic pinboard attachment or wide belt inspection conveyor.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

Can be equipped with measured yardage device for two-shuttle looms.

ABBOTT MACHINE CO., INC.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.

Lower Production Costs!

with ROY 3 POINT PLAN

Here's how you can lengthen the life of your card grinders!

1. Install long life internal ball bearings.
2. Apply our special grease compound with a Roy grease gun on your worms and shells.
3. Insert SRS gears for cylinder grinding and SRDX gears for doffer grinding.

That's the proven 3 Point Plan, by B. S. Roy . . . foremost name in *"balanced"* grinders. For further details, contact our Gastonia, N. C. plant office.

"BALANCED" ROY GRINDERS

B. S. ROY & SON COMPANY
Worcester, Mass.

Sales Engineers in the South
Bill Cooper • Leon Frye • Bill Crowder
Southern Office and Plant
Second Ave., Gastonia, N. C.
Telephone Gastonia 4-2126

N. Y. The tape was designed to save time on jobs such as masking for protection and color separation; holding small parts in transit; sealing containers; and tabbing, repairing, and reinforcing packages.

Circle T-81 on Reader-Service Card

Five-Power Magnifier

An accurate five-power magnifier that operates without distortion has been developed by S. B. Logan & Co., Genoa City, Wis. The instrument, built to withstand rough usage, comes in an aluminum frame 2 ins. in diameter and ¾ in. high. It contains two individual polished lenses mounted to make the magnifier dustproof and resistant to breakage. The price is $3.50 postpaid.

Circle T-82 on Reader-Service Card

Flocculating Agents

Three new flocculating materials are being offered by Mineral Dressing Dept., American Cyanamid Co., New York 30, N. Y. Aerofloc Reagents are large complex molecules that bond together finely divided materials in aqueous solutions and cause them to settle out as flocs. The flocs settle more rapidly than unconsolidated particles, and leave a supernatant liquor suitable for reuse or for discarding without creating a pollution problem.

Circle T-83 on Reader-Service Card

Acid-Resistant Coatings

Ceilcote Co., Inc., Cleveland 9, Ohio, announces a series of products designed to protect concrete surfaces from attack by strong acids. Ceilcrete B is a thermosetting plastic designed to be used with glass cloth to protect piers and pump pits. The coating stands up to constant immersion in acid solutions. It is dense, hard, and resistant to abrasion.

Circle T-84 on Reader-Service Card

Ammonia Detector

The Nitrogen Div., Allied Chemical & Dye Corp., New York 6, N. Y., is offering free of charge an ammonia-detecting device to ammonia users. The detector is a booklet containing paper strips impregnated with phenolphthalein. To detect ammonia leaks, a strip of the paper is soaked in water and held near suspected leaks. If ammonia is present, the paper will turn pink.

Circle T-85 on Reader-Service Card

new SPECTRACHROME

Sparkling color specially created for box wraps, tags, tickets! It took 4 years to develop, and is exclusive with us. Write today to learn how Spectrachrome can add new drama to your product at moderate cost.

SPECTRACHROME BROWN

Write:
W. M. BROWN & SON, INC.
Color Printers
700-706 S. Belvidere St. Richmond 5, Va.

"TRAFFIC PANEL" TEST PROVES
DOLCOWAX
BEST FOR
LONG-LASTING FLOOR BEAUTY!

THE TEST—four sections of flooring, each panel prepared with a different floor wax. All panels subjected to heavy traffic . . .

THE RESULTS—The DOLCOWAX panel retained markedly finer lustre—its beauty actually increased with wear—and it retained scuff and scratch resistance to a greater degree.

DOLCOWAX *premium quality* floor wax is most economical in the long run. Ideal for "second coating"—the second coat integrates with the first . . . no "crawling" or "puddling" to prevent an even, uniform film.

IMPORTANT: The slip-resistance feature built into DOLCOWAX permits a soft, lovely finish with safety protection! Has Underwriters Laboratories approval, of course.

When preparing floors for waxing, use CINDET, the Dolge all-purpose cleaner, for more complete stripping of old wax film.

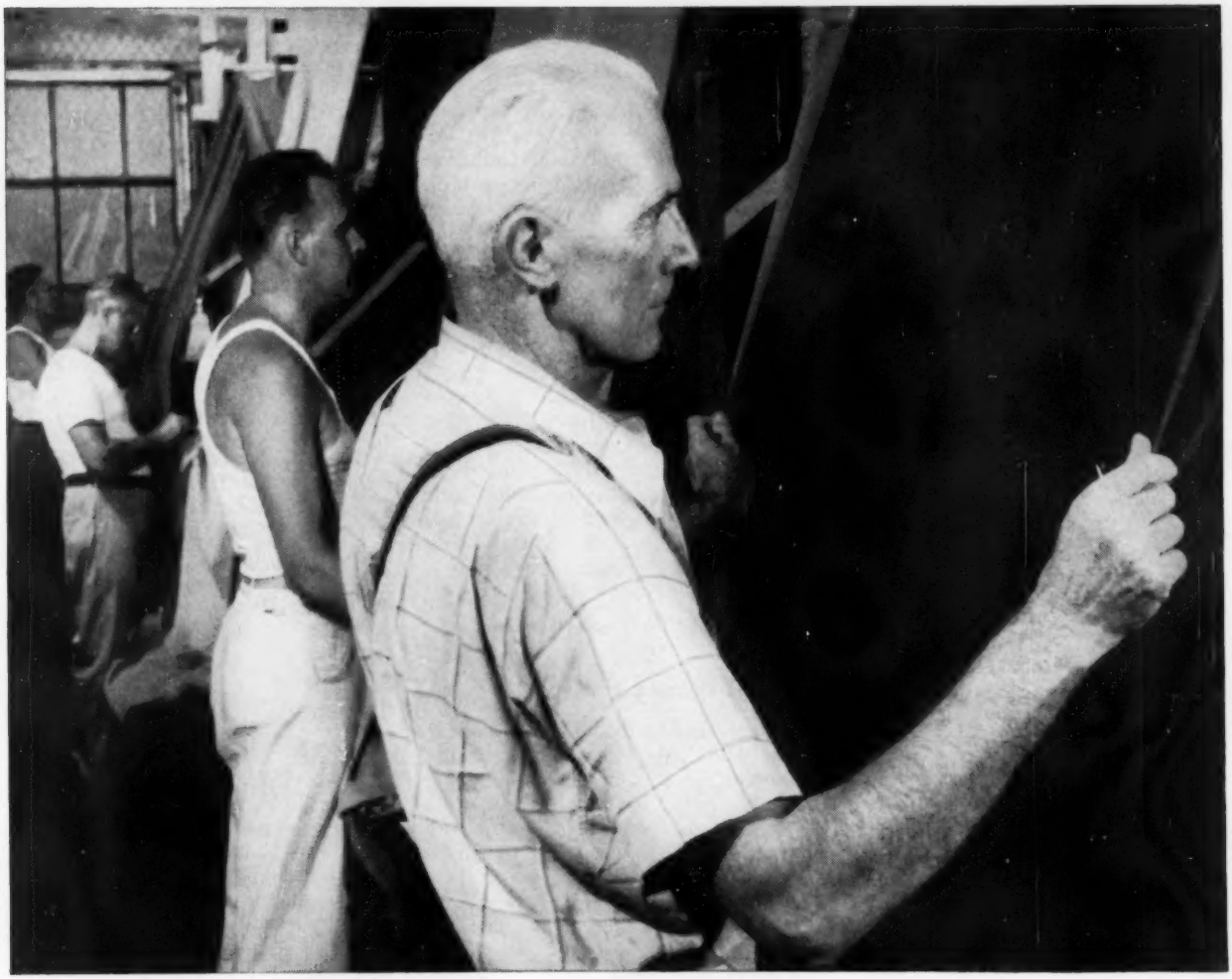
Write for literature; consult your DOLGE Service Man on your floor finishing problems.

FOR FREE SANITARY SURVEY OF YOUR PREMISES SEE YOUR DOLGE SERVICE MAN

dependable DOLGE
WESTPORT, CONNECTICUT

Telescoping Conveyor

Device Prevents Mildew



In TEXTILES *and Chemicals*
IT TAKES BOTH
FINE MATERIALS AND KNOW-HOW

SOLVAY's position as a leading supplier of chemicals to the textile industry is the result of having provided not only materials of the highest quality . . . but also skilled technical assistance in the use of these products. For in addition to textile chemicals that have set a standard for over 73 years, SOLVAY offers the facilities of the section of their Technical Service Department that specializes exclusively in textiles.

Over the years, the engineers and technicians of SOLVAY's Technical Service Textile Section have acquired a vast knowledge and experience. They have at their disposal extensive laboratory facilities and equipment devoted solely to textile processing and testing, in addition to the general organization and equipment of the world's largest alkali research laboratories. This combination of knowledge, experience and specialized laboratory equipment has made it possible for our Textile Section to supply assistance on both technical and production problems, at various times over the years, to most of America's leading textile producers.

SOLVAY makes no charge for services of this kind. It is simply one of the service dividends that go with the purchase of SOLVAY textile chemicals.

SOLVAY PROCESS DIVISION
Allied Chemical & Dye Corporation
61 Broadway, New York 6, N. Y.

Allied Chemical

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit
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SODA ASH
CAUSTIC SODA
LIQUID CHLORINE
SODIUM NITRITE
POTASSIUM CARBONATE (Calcined and Hydrated)

DARY
Ring Travelers

OUR SPECIALTY!

Our specialty is making Dary ring travelers—an item well and favorably known to the textile trade for more than half a century. Though times change, we at Dary hold to one course without deviation. We continue to serve, by pursuing our specialty.

When you need ring travelers, call on our experience to aid your choice. Consult your friendly Dary representative!

Always specify
DARY Ring Travelers

THE DARY RING TRAVELER CO.
TAUNTON, MASSACHUSETTS
LINDSEY I. PHILLIPS, TREASURER, TAUNTON, MASS.
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
JAMES H. CARVER, BOX 22, RUTHERFORDTON, N. C.
CRAWFORD "JACK" RHYMER, BOX 2261, GREENVILLE, S.C.

Telescoping Conveyor

Telescoping conveyor sections mounted on wheels are being produced by Mathews Conveyor Co., Ellwood City, Pa. The conveyor sections are 10 or 16 ins. wide and have 10 to 20 rollers per foot of conveyor. The telescoping units are for loading and unloading trucks and boxcars and for general warehouse use.

Circle T-86 on Reader-Service Card

Tools for Polishing

A kit with 24 polishing wheels, cones, blocks, and mandrels is sold by Cratex Mfg. Co., 81 Natoma St., San Francisco 5, Calif. The tools clean and polish commutators and contact points, welded seams, and castings. They also remove films, coatings, and enamel. A complete kit costs $12.50.

Circle T-87 on Reader-Service Card

Ball-Bearing Flanges

Completely self-contained ball-bearing units sturdy enough to be mounted with only two bolts are manufactured by Stephens-Adamson Mfg. Co., Ridgeway Ave., Aurora, Ill. The bearings are available for shafts of ½- to 2⅞-in. dia.

Circle T-88 on Reader-Service Card

Electric Truck

An electric truck that's said to carry 1,000 lbs. easily and operate at a cost of only 5 to 15¢ per day is produced by Laher Mustang Mfg. Co., 2615 Magnolia St., Oakland 7, Calif. To recharge the batteries, you simply plug into a 110-v. lighting outlet overnight.

Circle T-89 on Reader-Service Card

Lift Truck for Pallets

A hand-operated lift truck for pallets is offered by Market Forge Co., Materials Handling Div., Everett 49, Mass.

Circle T-90 on Reader-Service Card

Store Lamp Tubes Safely

You can store fluorescent tubes without danger of breakage in a storage rack designed by Frick-Gallagher Mfg. Co., Wellston, Ohio. The rack is made so that tubes can be stacked all the way to building ceilings. Different kinds of tubes may be stored separately.

Circle T-91 on Reader-Service Card

Device Prevents Mildew

A device to prevent mold and mildew in storage areas has been announced by Melco Sales, Inc., 305 5th Ave., S., Minneapolis 15, Minn. The device plugs into a 120-v. a.c. outlet and has no tubes, liquids, glass parts, or bulbs to worry about. The unit can be mounted on a bench or shelf or can be suspended from a ceiling. The price is $97.50.

Circle T-92 on Reader-Service Card

Self-Lubricated Bearing

A plastic bearing insert to replace metal bearing surfaces is manufactured by The Richardson Co., Lake & 26th Sts., Melrose Park, Ill. The graphite-treated bearing is said to provide adequate lubrication without additional greases or oils, and therefore stains on manufactured materials are eliminated.

Circle T-93 on Reader-Service Card

Pallet Dollies

Magnesium pallet dollies that weigh only 37 lbs. but have capacities up to 4,000 lbs. are produced by Magnesium Co. of America, East Chicago, Ind. Features are phenolic-resin rollers with sealed bearings, 360° turning, and tilt construction.

Circle T-94 on Reader-Service Card

Cleated Conveyor Belt

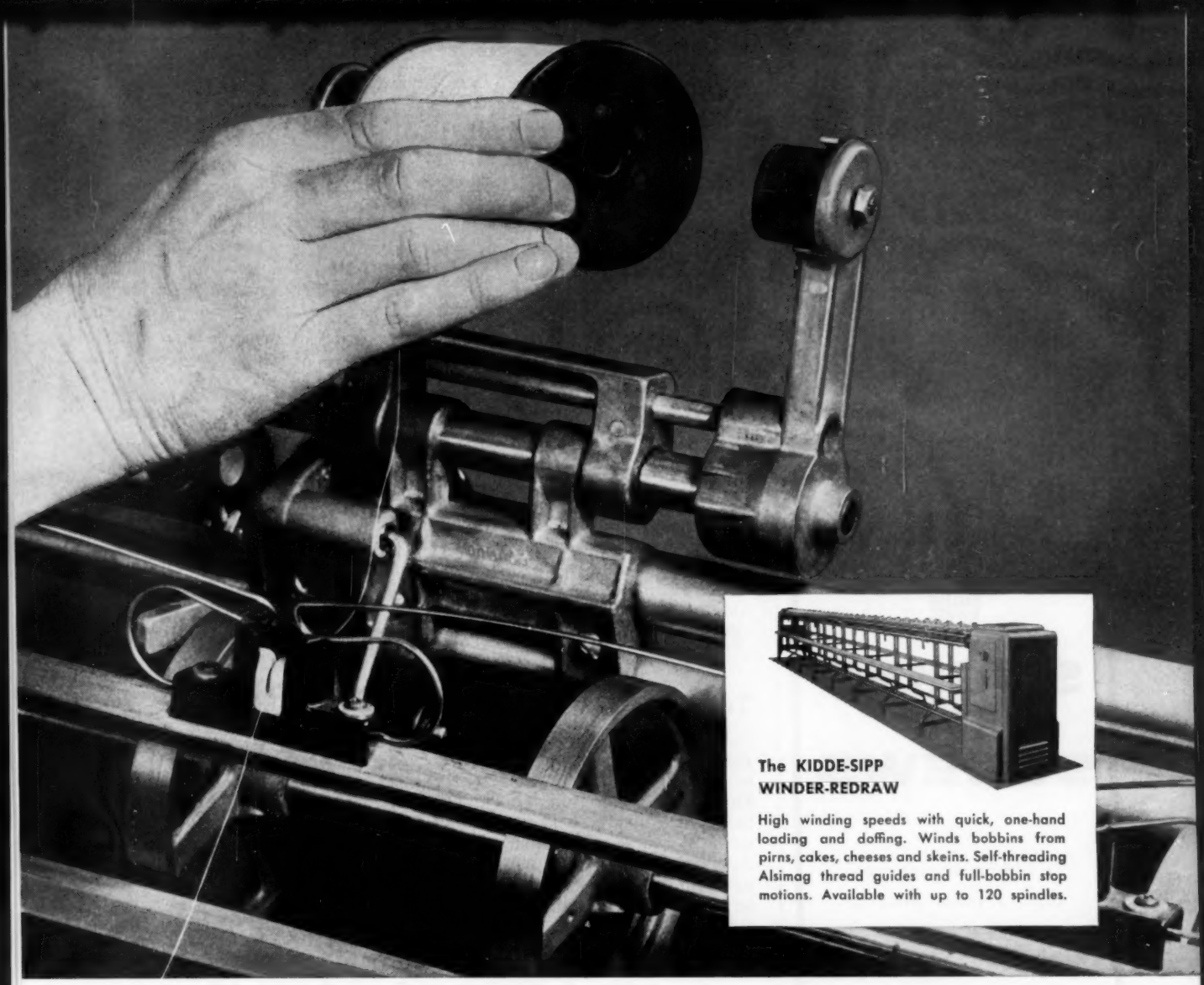
A cleated conveyor belt designed to carry loads up steep inclines where regular flat-top belts let materials slip has been introduced by Goodyear Tire & Rubber Co., Akron 16, Ohio. The belting is available in a range of plies, cover thicknesses, widths, and rubber compounds to meet practically all customer needs.

Circle T-95 on Reader-Service Card

Paving-Breaker Device

A safety device is available for new paving breakers or for existing models. The device is a handle and weighs less than 2 lbs. It prevents injuries to workers' hands when they are working close to walls or projecting masonry. Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y., makes the device.

Circle T-96 on Reader-Service Card



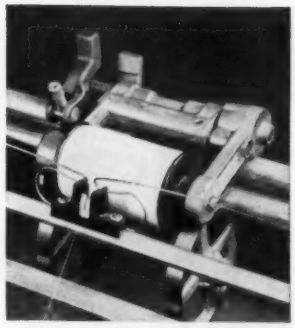
The KIDDE-SIPP WINDER-REDRAW

High winding speeds with quick, one-hand loading and doffing. Winds bobbins from pirns, cakes, cheeses and skeins. Self-threading Alsimag thread guides and full-bobbin stop motions. Available with up to 120 spindles.

One hand does it... without touching the yarn!

The high running speed of a KIDDE-Sipp winder-redraw machine is only one of the reasons why it's a top producer of even, smooth bobbins. As you can see, the operator can doff a full bobbin in a split-second... with a flip of the hand. And her fingers never even touch the yarn!

Equally important, this winder has self-threading guides and is equipped with full-spool stop motions. These advantages, combined with one-hand loading and one-hand doffing add up to this . . . with the KIDDE-Sipp winder one operator can tend more spindles and turn out more bobbins than with other machines. Write us today for complete information.



No oil spots on the yarn! Spool driving heads and friction wheels have oil-sealed bearings. Traverse rods operate on nylon rollers . . . no lubrication is required.

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

Kidde

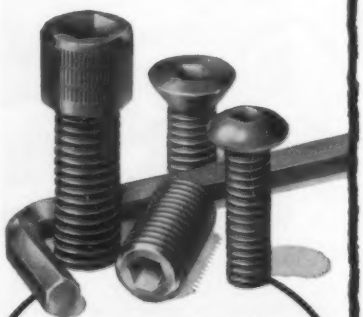
MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

What mill people say ABOUT ALLEN SOCKET SCREWS

"Use them whenever possible. I prefer them because when I put 'em in they stay."

—SUPERINTENDENT,
Griffin, Georgia,
Textile Mill
(name on request)



ALLEN MANUFACTURING COMPANY
Hartford 2, Connecticut, U. S. A.

Exhaust Fan

A bypass duct fan produced by Hartzell Propeller Fan Co., Piqua, Ohio, is said to be ideal for removing air from high-temperature areas such as boiler rooms. The fan operates satisfactorily at 300° F. provided the ambient temperature is not over 95° F. The fan is available in 25-, 29-, and 37-in. dia.

Circle T-97 on Reader-Service Card

Magnetic-Agitator Drum

A nonelectric permanent magnetic-agitator drum to separate small iron particles from other materials is being produced by Eriez Mfg. Co., Erie 6, Pa. The units are available in 12- and 18-in. dia. in widths from 10 through 38 ins. The drum can be installed at the discharge end of a gravity-flow chute, spout, screw conveyor, or similar system.

Circle T-98 on Reader-Service Card

Tube-Bending Tool

A manual tool, Tork-grip, for non-slip tube bending has been introduced by Parker Appliance Co., 17325 Euclid Ave., Cleveland, Ohio. The tool, which may be held in a vise or mounted on a workbench, has a clamping arrangement that grips the tube firmly. Even stainless steel can be bent without slipping and flattening.

Circle T-99 on Reader-Service Card

Self-Draining Valve

A self-draining valve designed to meet high-temperature or corrosive conditions is being made by Jerguson Gage & Valve Co., 80 Fellsway, Somerville 45, Mass. It is to be used where it's necessary to keep liquid from remaining in the valve.

Circle T-100 on Reader-Service Card

Racks for Conduits

Large quantities of electrical conduit and other piping material can be stored in a small space by using vertical racks manufactured by The Frick-Gallagher Mfg. Co., Wellston, Ohio. Conduit up to 10 ft. long can be stored upright in the racks. Features are: the racks do not have to be fastened, and material is withdrawn easily.

Circle T-101 on Reader-Service Card

Portable Conveyor Tracks

Strips of wheeled conveyor track manufactured by Rapids-Standard Co., Inc., Grand Rapids 2, Mich., can be laid on the floor or set on the workbench to reduce manual handling. A 10-ft. section of the track weighs 24 lbs. and distributes loads of 750 lbs. The low-cost flow track is used for handling packages, cases, cartons, pallets, and cylindrical objects.

Circle T-102 on Reader-Service Card

Coupling Link for Chains

A coupling link made by Columbus McKinnon Chain Corp., Tonawanda, N. Y., lets you make up your own sling and special assemblies. You can use it for joining hooks and large links to body chain. A self-locking steel pin locks the link securely in place.

Circle T-103 on Reader-Service Card

Magnetic Pulley

A permanent magnetic pulley for separating iron contamination from processing material on conveyor belts has been announced by Eriez Mfg. Co., Erie, Pa. The pulley operates efficiently through rubber or canvas conveyor belts. It is also effective on stainless steel or other nonmagnetic material.

Circle T-104 on Reader-Service Card

Cards Are Filed Faster

Cross-File Card Units made by Remington Rand, 315 Fourth Ave., New York 10, N. Y., result in easier viewing and greater working convenience. The six- and eight-drawer files house either 5x3-, 6x4-, or 8x5-in. punched cards.

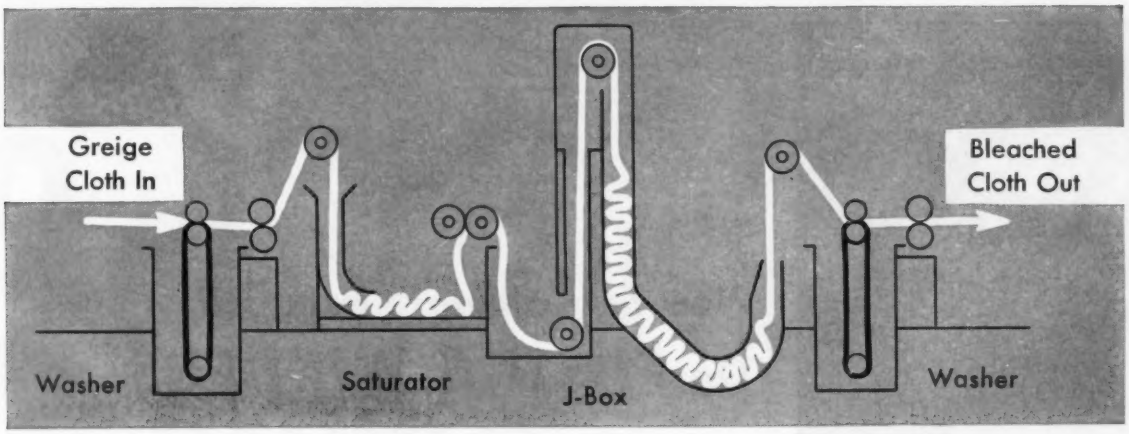
Circle T-105 on Reader-Service Card

Drive for Lift Truck

An improved drive for Hyster trucks enables operators to raise loads at a fast rate while the truck is still moving to the loading position. This drive replaces the old creep control, and there's no delay between pressure on the clutch control and actuation of the clutch. The drive is made by Hyster Co., 2902 N. E., Clackamas St., Portland 8, Ore.

Circle T-106 on Reader-Service Card

CONTINUED ON PAGE 244



OVERSIMPLIFIED?

Not at all! With Du Pont's new one-step
single-stage peroxide system
just one pass through one J-box
effectively bleaches cotton woven goods

With this latest development of Du Pont practical engineering, boiling out and bleaching are handled simultaneously. This means you can cut over-all bleaching costs by as much as 20%—and still produce results equal in every way to those obtained with the older multi-stage systems.

Du Pont's compact new system enables you to maintain present production levels with half the equipment, half the floor space . . . or double production without additional equipment. Cloth distortion and abrasion from handling are minimized, and savings of up to 50% in labor, steam, water and power are quickly realized.

We'll be glad to show you how your present bleaching system can be modified to operate on this new *one-step* principle. Or, if you're planning to install new equipment, Du Pont bleaching experts will gladly show you how the Du Pont process can substantially cut the cost of your initial investment.

NOTE: *Du Pont does not build or sell bleaching equipment. However, Du Pont systems are available* now *from leading equipment manufacturers.*

Send coupon for details

DU PONT PEROXIDES

ALBONE® hydrogen peroxide, 35% and 50%

PERDOX® sodium borate perhydrate

SOLOZONE® sodium peroxide

Sodium perborate tetrahydrate

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department TW-11
Wilmington 98, Delaware

☐ Please send full information about the new Du Pont single-step continuous bleaching system.

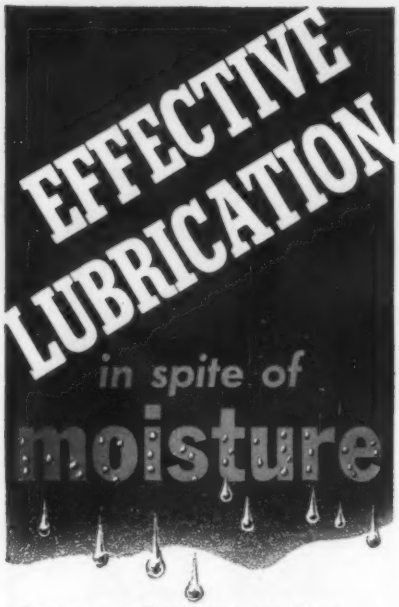
Name_____

Title_____

Firm_____

Street & No._____

City_____ State_____



LUBRIPLATE Lubricants provide superior lubrication even in the presence of moisture and steam. They permit high speed operation, have exceedingly long life and do not break down. There is a LUBRIPLATE Lubricant, ranging from the lightest oils to the heaviest greases, to meet every requirement of the textile industry.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

How To Calculate Production On FILLING WINDERS

- **From a production table based on spindle speed and one yarn number, yards per minute for any size of yarn can be calculated**
- **From a breakdown of the operator's duties, operator production can be calculated**

DON'T LET ANYBODY TELL YOU what the productivity of a machine or an operator will be. Figure it out for yourself. Here is how we did it on our filling winders:

Production and Spindle Speed

Production is directly in proportion to spindle speed. Here are actual figures:

On 150-den. rayon (35.43 cotton-number equivalent) at 5,200 rpm., a spindle will fill a 7⅜-in. bobbin with 2,035 yds. of yarn in 6.033 mins. This yardage weighs 480 grains.

The following table shows production at different speeds (assuming 100% efficiency in winding):

A (rpm.)	B (yds.)	C (mins.)	D (lbs.)
5,200	337.31	6.033	27.17
12,500	810.89	2.510	65.31
15,000	973.14	2.091	78.37

A = spindle speed; B = average yards per minute; C = minutes to fill the bobbin; D = production per spindle per 40 hrs.

From this table, the basic figure of yards per minute can be used in direct proportion for any size of yarn.

Productivity of Operators

An operator must replace run-out supply packages, tie up broken ends, start up spindles that miss on the doff, see that the winder has enough empty pinboards, call for empty bobbins when needed, and pick up and clean around the area of her machines. If she doesn't do these things, someone else has to; so it is all a part of winding cost.

Here is our breakdown of an operator's duties:

Replacing supply packages	24 (mins.)
Spindle attendance	27
Fatigue allowance	9
	60 mins.

Spindle attendance includes all other duties previously listed except replacing supply packages. The time element for replacing supply is 0.547 min. This time element was established over hundreds of hours of observations on at least four different kinds of creels.

From these figures, it is simple to figure productivity of the operator. At 0.547 min. for each package, an operator will put up 44 packages an hour. If the package is 2, 3, or 4 lbs., that will be your answer to productivity.

If this breakdown of duties does not suit and your operator only replaces packages, with someone else handling the broken ends, etc., here's what an operator will do in 8 hrs. with packages of various sizes:

Replacing supply packages	51 (mins.)
Fatigue time	9

51 ÷ 0.547 = 93 packages per hour
93 × 8 = 744 packages per 8 hrs.

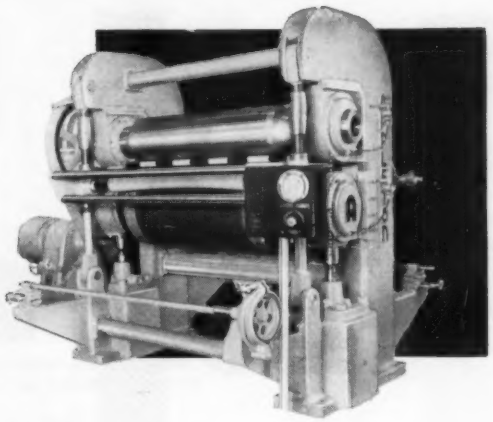
Now arithmetic tells the tale of production: 744 × 1 lb.; 744 × 2 lbs.; 744 × 3 lbs.; etc.

Adapted from a paper presented by Deane R. Quinton, plant manager, Androscoggin Div., Bates Mfg. Co., before The American Society of Mechanical Engineers

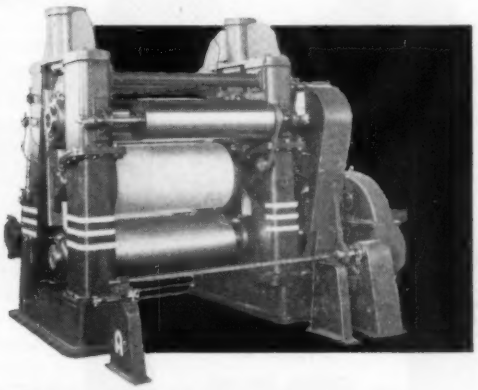
3 efficiency experts

at Everglaze Finishing

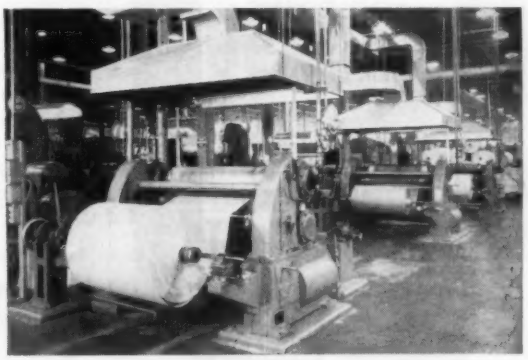
Apply increased production and less maintenance to your everglaze operation with new Appleton Machine efficiency . . . that puts you ahead of competition . . . that protects your profits now and for years to come. Here are 3 ways to do it:



1 An Appleton 2-roll, 50-ton Hydraulic Schreiner Calender gives goods a beautiful lustre at 40 yards a minute, 25% faster than most machines in use.



2 The Appleton 3-roll, 50-ton Hydraulic Friction Calender irons the finest everglaze finish at 40 yards a minute, increasing output by 25%.



3 The Appleton 20-ton Embosser imbeds the most meticulous or simplest design with equal ease and efficiency, at the standard 20 yards per minute.

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Acceptance Assured: the invisible stamp of approval on every yard of everglaze finished goods that runs through modern, money-saving Appleton Machines. An Appleton man is as close to you as your telephone. Why not call 3-7361, or wire, collect at absolutely no obligation, today.

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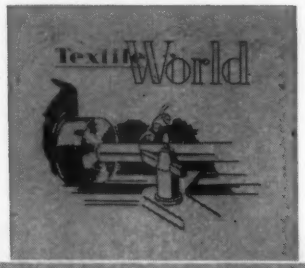


MILL MAINTENANCE

Use Gear Motors Right for Long Service

Speed reducers built integrally with electric motors, known as gear motors, require little attention after they are properly installed and correctly aligned. Most maintenance is limited to inspection and lubrication.

Handle Units Carefully

The housing of a gear motor, of course, protects the gearing from dirt, dust, and abuse; nevertheless, care must be taken when the motor is handled to prevent distortion or other damage to the motor and gear teeth.

Do not take gear units apart unless it's necessary, because dirt will get into the unit. Slushing compound installed in the unit at the factory should not be removed until the motor is about ready to be installed.

Do not hammer pulleys, sprockets, or pinions onto the motor shaft, since a blow on the end of the shaft may damage the gears or bearings. Mount overhung pulleys or sprockets as close to the motor as possible to prevent unnecessary bearing loads.

Install Motors Right

Foundations for gear motors should be rigid and substantial enough to prevent vibration and to maintain alignment. Concrete, masonry, and structural steel are the most-satisfactory foundations. However, wood framework may be used if it is rigidly constructed.

In designing the foundation, consider the torque being developed at the low-speed shaft in contrast with the motor horsepower. For example, a unit with a 100-to-1 ratio and a 1-hp. motor requires as rigid a foundation as a 10-hp. motor and a 10-to-1-ratio unit.

Align Them Accurately

Accurate alignment of gear motors is important. Excessive wear on the coupling is a certain indication of misalignment because unusual stresses and overloads are developed.

To maintain alignment, use a bed or base plate to support the gear motor. You can build these bases locally or get them from the motor manufacturer. To level the bed plates, use small steel plates shimmed up with thin pieces of metal.

Inspect Units Regularly

After a new unit has been in service for several days, examine all bolts and nuts to see that they are tight. Then continue to inspect and tighten loose nuts periodically because vibration loosens them.

Inspect the oil level regularly to be sure the unit does not run dry. Add oil when it's needed. In force-feed installations, check the operation of the system periodically and clean and flush the filters.

Watch Oil Temperature

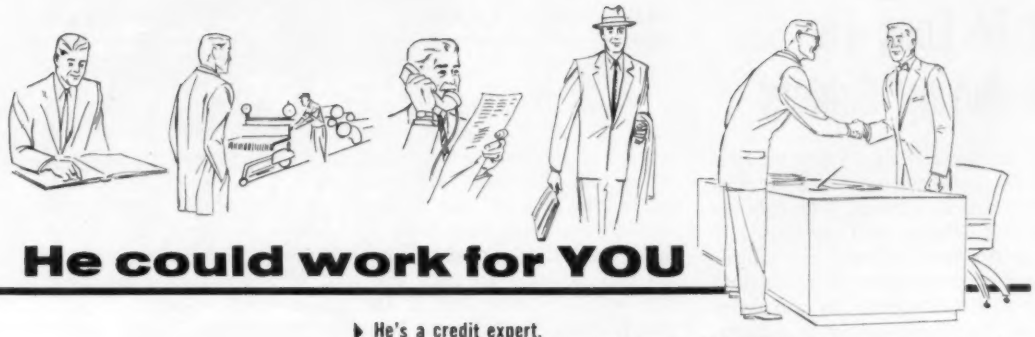
When excessively high oil temperatures prevail, the trouble may be caused by a continuous overload. Overloads are caused by (1) a gear motor too small for the job, (2) a motor too large, or (3) too much oil in the casing, which results in churning.

The temperature of a gear motor that runs continuously is somewhat higher than one that runs intermittently. But there is no cause for concern when a motor runs hot, so long as the temperature does not continue to rise.

Lubricate Periodically

On splash-lubricated units, fill the oil reservoir to the proper indicated level only; do not fill the oil above the mark, and never completely fill the housing.

CONTINUED ON PAGE 242



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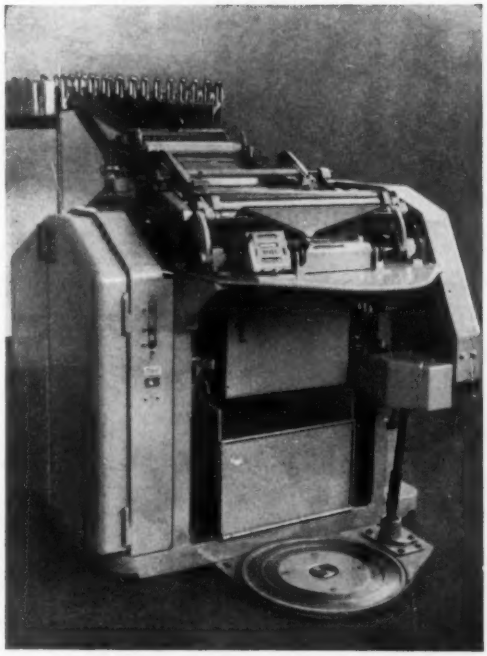

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What To Look For When Buying Guiders

It is a well known fact that no two groups of conditions are ever the same in guiding fabrics. This means that no two fabrics can be handled alike for no two fabrics are alike. Countless weave constructions and weights of fabrics call for a guider of almost limitless scope of adjustment—one in which adjustments can be made *while in operation.*

The MECHO Air Guider was developed by trial and error which involved hundreds of experiments with countless mechanical, electrical and pneumatic movements and devices. It meant testing, checking, proving and re-designing—consultations with production heads of some of the largest finishing plants in the country. So the *simplicity, economy* and efficiency of the MECHO Air Guider didn't just happen.

An outstanding illustration of the practical design of the MECHO is the

Selvage Finger Adjustment

The "while in operation" adjustment that we describe above is accomplished with this ingenious, accurate and practical component. All ordinary adjustments are covered through the range of "steps" from light to heavy tension. With this simple adjustment MECHO Guiders can handle a speed variation of 1 ypm to as high as 400 ypm.

We have prepared a booklet that is yours for the asking. It shows how the MECHO Air Guider will simplify your guiding problems, reduce maintenance costs and increase guiding efficiency.

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425 WEST ROCK AVE.
NEW HAVEN 15, CONN.

Southern Representative:
McSPADDEN & SCANTLAND
P. O. Box 3635
Charlotte 3, N. C.

CONTINUED FROM PAGE 240

To assure long life for a unit, make sure the oil is clean and free from sludge at all times and change the oil at regular intervals. For new units, drain the oil at the end of two weeks' operation and flush the case with light flushing oil. The original oil can be used to refill the unit if the oil is filtered; but if the oil is not filtered, new oil must be used.

For units operating under normal conditions, change the oil every three to six months. Oil replacement every one to three months may be necessary under moist or wet conditions.

When gear-motor speeds are high, the driven loads are usually light and an oil of low viscosity should be used. But when speeds are low, the loads are heavy and high-viscosity oil should be used.

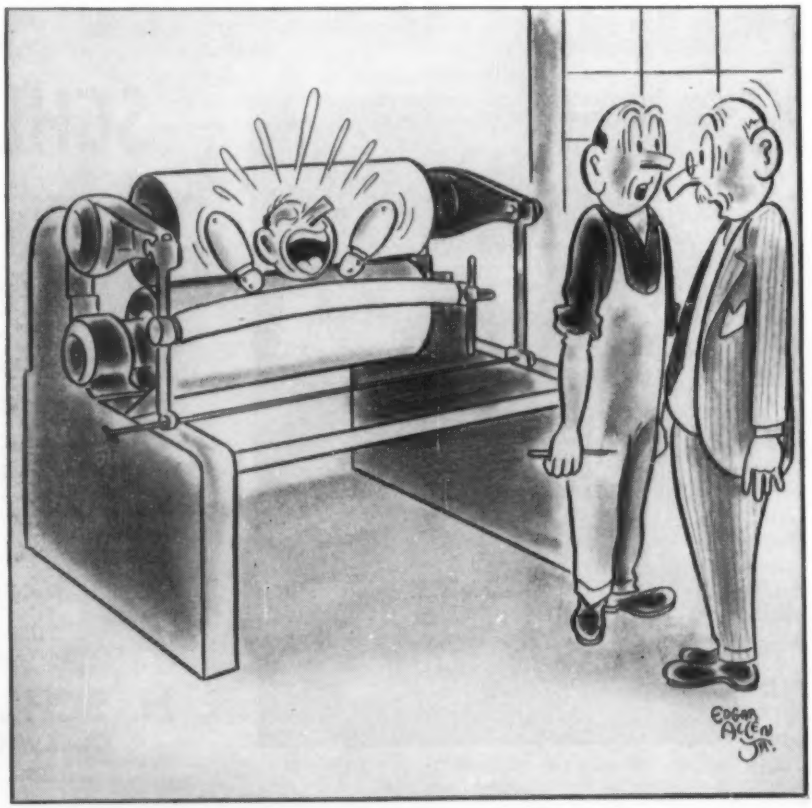
Lubricating oils should be high-grade petroleum oils. They must not corrode gears or bearings. *Power Transmission Council, Inc.*

► Dayton Rubber Co., Dayton, Ohio, has come up with a simple method for checking static electricity around V-belts. You can use the method to check static electricity and perhaps prevent a dangerous fire or explosion, or conditions may be so severe that you need a specially designed static-free V-belt.

The V-belt manufacturer recommends holding a neon glow bulb near a V-belt to check for potentially dangerous static electricity. The bulb will actually light up if static electricity is around the belt. There may be enough static electricity to knock the bulb out of your hand; so you need some kind of holder for the bulb. Attaching the bulb to a pencil is a good way to hold the bulb.

Contrary to popular opinion, less static electricity is generated during a thunder-and-lightning storm or whenever the atmosphere is damp. It's the dry days that are troublesome.

TEXTILE TICKLES . . . . . *By Edgar Allen, Jr.*



"Oh, I think he'll get the hang of it in time — but I'm having a bit of trouble breaking him in!"

Out with LINT-FLY and TRASH.. from your SPINNING FRAMES and ROVING FRAMES

DO IT QUICKLY, ECONOMICALLY

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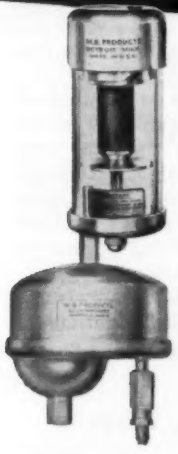
M·B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

KEEP YOUR AIR LINES FREE of WATER·DIRT and SLUDGE

KEEP AIR DRY AT ALL TIMES
USE THIS AMAZING COMBINATION
AND GUARD YOUR PNEUMATIC SYSTEM



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RIBBON TYPE FILTERING UNIT removes solids .00039 and larger. Transparent plastic bowl makes filtered foreign matter visible. Gives maximum protection to all types of Lint Blowers, Blow-off Hoses and various air-operated controls.

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Ejects water automatically. Operates upon accumulation of 3 to 4 ounces. Discharges in less than 5 seconds. Assures dry air in pneumatic system at all times. Non-corrosive throughout. Weighs less than 5 pounds.

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- **NO SCREWS OR RIVETS** in assembly to upset balance.
- **SPECIAL BEARING** material stands wear better than metal. Hard, tough, excellent impact strength.
- **WILL NOT SEIZE** on spindle or wear out spindles.
- **STAYS DIMENSIONALLY STABLE** under high temperature steaming.
- We can build to your own specifications.

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All types of rubber treads—soft, medium and hard—for smooth operation on all kinds of floors. Featuring Neoprene rubber treads - resistant to oxidation, oils and waxes as well as being unaffected by most chemicals - expertly compounded to Darnell standards.

All casters, whether steel or rubber tread, available in swivel and stationary models with various top plates, stems and fittings for any type application.

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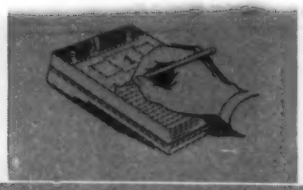

CALENDAR

November

American Institute of Electrical Engineers, Mid-Atlantic Textile Conference, N. C. State College, Raleigh, N. C., Nov. 3 and 4.

AATCC, Western New England Sect., Hartford, Conn., Nov. 4.

Carded Yarn Association, annual meeting, Bon Air Hotel, Augusta, Ga., Nov. 10 and 11.

National Association of Woolen & Worsted Overseers, Hotel Manger, Boston, Mass., Nov. 11 and 12.

AATCC, Niagara Frontier Sect., and CATCC, Ontario Sect., joint meeting, Montreal University, Hamilton, Ont., Nov. 26.

Ninth Air Conditioning & Refrigeration Industry Exposition, Convention Hall, Atlantic City, N. J., Nov. 28 to Dec. 1.

December

AATCC, Rhode Island Sect., Johnson's Restaurant, Providence, R. I., Dec. 1.

AATCC, Pacific Southwest Sect., Gourmet Restaurant, Beverly Hills, Calif., Dec. 2.

AATCC, Philadelphia Sect., Kugler's Restaurant, Philadelphia, Pa., Dec. 2.

AATCC, Southeastern Sect., Atlanta Biltmore Hotel, Atlanta, Ga., Dec. 3.

AATCC, South Central Sect., Hotel Patten, Chattanooga, Tenn., Dec. 10.

AATCC, Western New England Sect., Rapp's Restaurant, Shelton, Conn., Dec. 16.

1956

January

Plant Maintenance & Engineering Show, Convention Hall, Philadelphia, Pa., Jan. [illegible] to 26.

February

AATCC, Pacific Southwest Sect., Gourmet Restaurant, Beverly Hills, Calif., Feb. 6.

Seventh Annual Cotton Research Clinic, Pinehurst, N. C., Feb. 15 to 17.

April

Phi Psi Textile Fraternity, annual convention, Alabama Polytechnic Institute, Auburn, Ala., April 19 to 21.

May

The Fiber Society, spring meeting, The Clemson House, Clemson, S. C., May 2 and 3.

June

Materials Handling Institute Exposition of 1956, Public Auditorium, Cleveland, Ohio, June 5 to 8.

October

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 1 to 5.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 236

Pipe-Threading Machine

Production can be increased 40% with a pipe- and bolt-threading machine, says the manufacturer, Beaver Pipe Tools, Inc., Warren, Ohio. The machine threads 2-in. pipe in 10 to 12 secs. and threads ½-in. pipe in 5 to 8 secs. A power-grip wrenchless chuck reduces the chucking time.

Circle T-107 on Reader-Service Card

Power Hacksaw

A hacksaw attachment for air or electric drills, made by Thor Power Tool Co., 175 N. State St., Aurora, Ill., cuts wood, metal, plastic, etc. The attachment weighs only about 3 lbs. It's said to speed the work of carpenters, electricians, plumbers, and other maintenance men.

Circle T-108 on Reader-Service Card

Rubber-Base Paint

A rubber-base paint to be used on walls, ceilings, and equipment where severe moisture and chemical conditions prevail is made by Tremco Mfg. Co., 8701 Kinsman Rd., Cleveland 4, Ohio. The product, Corosobar, is easy to apply and retains its color. It resists severe moisture, chemical fumes, and occasional direct contact with acid and alkali solutions.

Circle T-109 on Reader-Service Card

Fiberglas Filling Trays

Molded Fiberglas trays suitable for handling filling at looms, laboratory trays, and other textile uses are being made by Molded Fiberglass Tray Co., Linesville, Pa.

Circle T-110 on Reader-Service Card

Textile World

TEXTILE WORLD

Reprints Available

▶ **Reprints of the following articles run in past issues of TEXTILE WORLD are available at the price indicated. To order, write or use the coupon below, stating the titles of the reprints desired. Enclose check or money order payable to TEXTILE WORLD.**

STRETCH AND BULK YARNS—WHAT'S THEIR FUTURE? **25¢ each, 15¢ in lots of 20 or more**
An up-to-date roundup of new yarns available to mills, their uses and characteristics, and a forecast of developments to come.

HOW TO REDUCE CARD WASTE **50¢ each, 40¢ in lots of 20 or more**
This report of a one-year six-mill cooperative study shows that card waste can be reduced as much as 3% of lap weight; settings, speeds, and modified assembly are major key factors; and recommended speeds and settings, besides reducing carding waste, produce yarns of equal or better strength and appearance than conventional settings.

HERE'S A QUICK WAY TO IDENTIFY FIBERS **50¢ each, 40¢ in lots of 20 or more**
A four-step method of fiber identification is described. A full-color chart of identification stains, a solvent chart, and fiber cross sections are included.

HOW TO BE A BETTER SUPERVISOR **50¢ each, 40¢ in lots of 20 or more**
A series of articles on human relations and the supervisor's dealings with workers. The material tells supervisors how to increase their effectiveness by learning to understand people better. Pointers on how to improve employee morale, get worker cooperation, and reduce labor turnover are included.

CHEMICAL FINISHING TECHNIQUES **$1 each, 85¢ in lots of 20 or more**
A series of four articles that explain the chemical and physical properties of a number of finishing materials and their applications to and reactions with cellulose and various synthetics.

ENGINEERED TEXTILE DESIGN **Set of 5 articles. $1.25 per set**
A series of articles of interest to those engaged in practical fabric design or in teaching functional design. One article introduces the all-fiber system, which takes the guess out of how many ends and picks to use in changing to a new fabric. Another shows how to change weight without changing structure. Detailed numerical examples are provided. A discussion of yarn diameters, as the basis of structure, opens the series.

SYNTHETIC-FIBER TABLE **1 to 15 copies: $1 each; 16 to 30 copies, 75¢ each; over 30 copies, 60¢ each**
Brand-new edition lists by type and name all U. S. yarns and staple fibers in commercial production. Suppliers are listed by type and form of fiber. Valuable related data and a "Terminology and References" section are included. Comparative properties of wool and cotton fibers are shown.

TUFTED RUGS—HOW THEY ARE MADE AND FINISHED **25¢ each, 15¢ in lots of 20 or more**
Production details of the manufacture, dyeing, and finishing of tufted rugs. Some background on tufting is included.

WOOL-SYSTEMS FLOW CHART **35¢ each, 25¢ in lots of 20 or more**
New edition shows all the processes in making woolen and worsted fabrics on all yarn systems. Six typical finishing routines are also pictured to cover the main fabric types. The chart includes the manufacture of synthetic and blended fabrics on wool systems.

COTTON FLOW CHART **25¢ each, 15¢ in lots of 20 or more**
An illustrated step-by-step process chart of cotton manufacturing from bale to finished fabric. Both principal and alternate flows are shown.

CONTINUOUS-FILAMENT FLOW CHART **25¢ each, 15¢ in lots of 20 or more**
Principal and alternate step-by-step processes in handling continuous-filament yarns from the case of yarn to the finished fabric (including tire cord) are shown.

COTTON-FIBER TABLE **25¢ each, 15¢ in lots of 20 or more**
Revised edition shows fiber properties and manufacturing performance of the 11 varieties of cotton that make up more than 80% of the U. S. cotton grown. Data given enable mills to save money by selecting the best fiber for the end product.

EDITOR
TEXTILE WORLD
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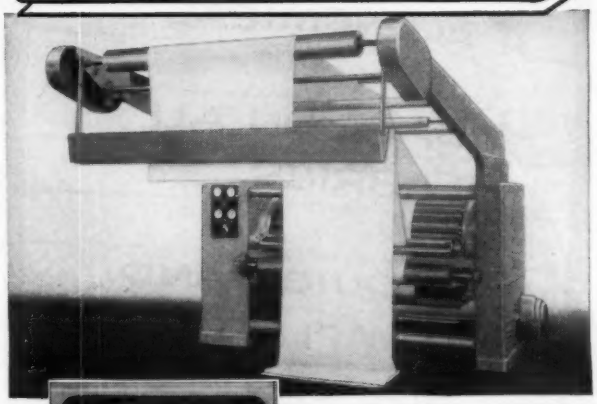
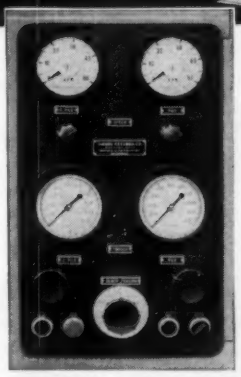
PLUS smoothness, PLUS nap density

is hard to believe





Even seeing Gessner's Hi-Torc Napper operating at four times a normal rate of production, and discovering the smoothness and density of nap obtained — leaves you at a loss for words. Just as amazing is the design of the Hi-Torc which permits exact indication of the napping results and therefore settings which you can, if you want to, duplicate accurately.

If you have heard that Hi-Torc Nappers are scarce, put it down to the demand. Mills who nap are finding that they cannot maintain their competitive position without one of those extraordinary machines.

Just say you would like to see a Hi-Torc Napper in operation. We'll do the rest.

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GESSNER *takes the* **GUESSWORK** *out of napping*

A Desizing Agent should be ...

- ☆ EASY TO USE
- ☆ ECONOMICAL
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NEWS about SUPPLIERS

AMERICAN VISCOSE CORP., Philadelphia, Pa.—Has promoted Edwin L. Marston to assistant manager of the New York, N. Y., district sales office. C. Henry Scott, III, has been appointed assistant manager of acetate sales and Everton H. Loveless has been promoted to sales representative for rayon filament yarn in the New York office. Ralph L. Stimmel has been named an assistant in the Staple Technical Sales Div., Marcus Hook, Pa. . . . **CELANESE CORP. OF AMERICA**, Textile Div., New York, N. Y.—Has named W. D. Clark assistant general sales manager for textile sales. Walter E. F. Mansfield has been named district sales manager for textile sales in the New England district. . . .**CHEMSTRAND CORP.**, Decatur, Ala.—Has named Cloyce L. Purdom assistant to the president. Other appointments include: John C. Fisher, staff purchasing agent; S. William Ginther, construction purchasing agent. . . .**COURTAULDS (ALABAMA) INC.**, New York, N. Y.—Has named Joseph O. Foil, Hickory Throwing Co., Greensboro, N. C., to handle sales

PAUL BOGNER (left) has been assigned to the Chicago, Ill., sales office of Emery Industries, Inc., Cincinnati, Ohio. JIM DOUGHTERY (center) has been named direct factory representative for WAK Industries, Charlotte, N. C. ALFRED GREENFIELD (right) has been named to direct the Fabric Development Dept. of the Fiber Div., Virginia-Carolina Chemical Corp., New York, N. Y.

of alginate yarn produced by Courtaulds Ltd. of England. . . . **CRANE CO.**, Chicago, Ill.—Recently celebrated its 100th anniversary. . . .**CURLATOR CORP.**, E. Rochester, N. Y.—Has appointed Parrott & Ballentine Co., Greenville, S. C., as its sales representative in the South. . . .**DOBECKMUN CO.**, Cleveland, Ohio—Has established a district sales office in Tampa, Fla., under the management of Ted De La Vergne. Paul Bennett, Southern Div. sales manager, with offices in Atlanta, Ga., is the general supervisor. . . .**ENGINEERED PLASTICS, INC.**, Gibsonville, N. C.—Has enlarged its office and manufacturing facilities. . . .**W. F. FANCOURT & CO.**, Philadelphia, Pa.—Has appointed Willard K. Sawyer salesman and technical advisor for Southern mills. . . .**HARTFORD MACHINE SCREW CO.**, Hartford, Conn.—Is installing machinery and equipment in its Greenville, S. C., division to provide servicing for Hartford spindles operating in the South. A. E. Winslow will head the division and A. E. Newell and W. B. Martin will continue to work out of this unit as sales engineers. . . . **HILTON-DAVIS CHEMICAL CO. DIV., STERLING DRUG, INC.**, Cincinnati, Ohio—Recently celebrated its first year of operation in Greenville, S. C. . . . **HOWE SCALE CO., INC.**, Rutland, Vt.—Has appointed Philip C. Cook sales manager of the newly created Truck Div. . . . **KOPPERS CO.**, Pittsburgh, Pa.—Has

The Gross Profit Vs. The Net

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In these days of steadily mounting overheads, Crompton Factoring performs a very important service to its clients. It provides a continuous flow of cash for receivables so that a larger volume can be done. As your volume increases, somewhere along the line your gross profit becomes your net profit, because your overhead has been taken care of – with more to spare.

And Crompton has more to offer beyond mere factoring. It provides wise and sympathetic guidance based on more than a century of business experience . . . and it eliminates your present costs of credit extension and collection.

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"WESCO" TOPS THE WORLD'S BEST KNITTING MACHINES

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PRODUCTION WISE - IT'S WESCO

USED ON ALL THESE KNITTING MACHINES:

Bentley	Edmos	Mellor, Bromley	Stibbe
Blackburn	Fidelity	Ordnance Gauge	Supreme
Brinton	Jacquard	Precision Knitters	Tompkins Bros
Cooper	Lamb	Scott & Williams	Wildman
Crane	Leighton	Stafford & Holt	Wildt

Wesco engineers are never satisfied. They keep pace with the developments of all new outerwear, underwear and hosiery knitting machines. The end result is that Wesco is standard equipment in the finest mills throughout the world. Wesco Stop Motions guard machines against press-offs, prevent needle breakage, improve the work and increase profits. You can't go wrong when you specify Wesco Stop Motions.

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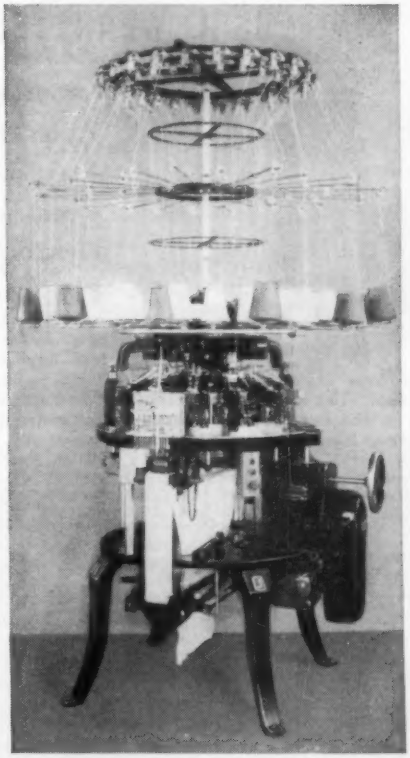
1471-77 Fulton St. Brooklyn 16, N.Y.

Another of a Series of Knitting Machine Builders. Others to follow



JACQUARD KNITTING MACHINE

HALLOWELL

SOLID STEEL COLLARS

Size-marked for quick identification in 42 stock sizes

And these precision-machined solid steel collars stay put because they are held in place on the shaft by the famous UNBRAKO Self-Locking Socket Set Screw. Authorized industrial distributors carry complete stocks in sizes from 3/16" to 3" inclusive. Write for Bulletin 868. STANDARD PRESSED STEEL CO., Jenkintown 35, Pa.

HALLOWELL POWER TRANSMISSION DIVISION SPS JENKINTOWN PENNSYLVANIA

UNIVERSAL WEAR TESTER

Model CS-22C

For measuring:

- SURFACE ABRASION
- FLEX ABRASION
- EDGE ABRASION
- PILLING

Reports by leading companies throughout industry have proven that the CSI Stoll Quartermaster Universal Wear Tester is a vital factor in both research and quality control. This multipurpose instrument will measure the resistance to surface, flex and edge abrasion of such materials as woven and knitted fabrics, napped and pile fabrics, hosiery, felt, non-woven and coated fabrics, yarns, threads, cordage, plastic films, rubber sheeting, leather, paper and many others.

ASTM Designations:

D1175-55T "Test for Abrasion Resistance of Textile Fabrics".
D1379-55T "Test for Abrasion Resistance of Textile Yarns".
D1375-55T "Test for Pilling Propensity of Textile Fabrics".

As our name implies we also welcome the opportunity to work on custom design and manufacture of testing instruments of all types for individual and general needs.

CSI CUSTOM SCIENTIFIC INSTRUMENTS, INC.
541 Devon Street Kearny, New Jersey
MANUFACTURERS OF CUSTOM-BUILT LABORATORY EQUIPMENT

purchased Turner & Haws Engineering Co., Inc., West Roxbury, Mass. . . . **THOMAS LEYLAND MACHINERY CO., INC., DIVISION OF JAMES HUNTER MACHINE CO.,** Readville, Mass.—Is now manufacturing a new aluminum cloth roll and the Flex Spool formerly manufactured by Flex Spool Co., Pittsfield, Mass. . . . **MINNEAPOLIS-HONEYWELL REGULATOR CO., BROWN INSTRUMENTS DIV.,** Philadelphia, Pa.—Has appointed C. L. Peterson vice president and

ALFRED B. CRAIG (left) has been promoted to section head of the newly created Research Spinning Section, Chemstrand Corp., Decatur, Ala. H. W. BLACK (center) has been named to the sales staff of H. F. Livermore Corp., Boston, Mass. WILLIAM B. AMOS (right) has been named sales representative in Atlanta, Ga., for Stein, Hall & Co., Inc., New York, N. Y.

general manager. . . . **MONSANTO CHEMICAL CO., INORGANIC CHEMICALS DIV.,** Everett, Mass.—Has named Ralph S. Hood an independent sales representative for Syton and the machinery used for its application. . . . **MORTON MACHINE WORKS,** Columbus, Ga.—Has elected the following officers: Mrs. S. W. Jackson, board chairman and secretary-treasurer; Harry C. Jackson, president; Pearce E. Jackson, vice president and general manager; Lee E. Berry, assistant secretary-treasurer. . . . **NATIONAL ANILINE DIV., ALLIED CHEMICAL & DYE CORP.,** New York, N. Y.—Has named William H. Metzger sales and service representative for Caprolan in Pennsylvania, Delaware, Maryland, and West Virginia. . . . **NOPCO CHEMICAL CO.,** Harrison, N. J.—Has appointed Edward G. Ackerman advertising manager. . . . **BENNETT ROSE CO.,** Roebuck, S. C.—Has started operations on the production of materials-handling equipment. Bennett S. Rose has been elected president and treasurer; John Henderson, vice president; Kenneth Edgar, secretary. . . . **SACO-LOWELL SHOPS,** Boston, Mass.—Has licensed J. & T. Boyd Ltd., Glasgow, Scotland, to manufacture and sell Saco-Lowell worsted roving and spinning machines in the British Commonwealth. . . . **SCOTT & WILLIAMS, INC., BRINTON FABRICS MACHINE DIV.,** New York, N. Y.—David Brinton, sales manager of the Brinton Fabrics Machine Div., has established permanent headquarters in the New York sales office. . . . **WILLCOX & GIBBS SEWING MACHINE CO.,** New York, N. Y.—Has been appointed sales agent for Pfaff Industrial Sewing Machine Corp., New York, N. Y.

JAMES H. CHAMNESS (left) has joined the Research Laboratory of Bryant Chemical Corp., North Quincy, Mass. FRANCIS X. MINICH (center) has been named sales and technical representative in Georgia and Alabama for Metro-Atlantic, Inc., Centredale, R. I. HAROLD E. MONGOVAN, JR., (right) has been named sales representative for the Organic Chemicals Div., North American Cyanamid Ltd., Toronto, Ont.

BEST FOR MARKING TEXTILES AND FABRICS!

JUNIOR EMPIRE

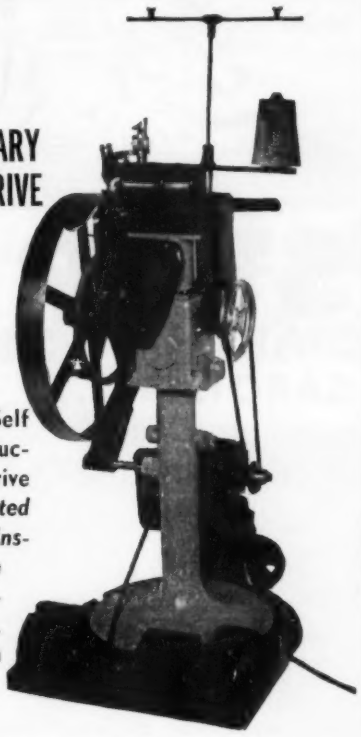
EMPIRE TEXTILE MILL CRAYON

The result of many years of careful study and experiment to meet the particular requirements of the Textile Industry . . . *Available in 18 Colors and in Two Sizes!* Write for colorful marking guide. Dept. T-8

THE AMERICAN CRAYON COMPANY
SANDUSKY, OHIO NEW YORK

EMPIRE TEXTILE MILL CRAYONS
REG. U. S. PAT. OFF.

MODEL 8-D-1
PORTABLE ROTARY WITH MOTOR DRIVE



No exposed gears. Self lubricated gear reduction unit. Chain drive to *Merrow Butted Seaming Head or Dinsmore Single Chain Stitch Head.* Automatic cloth stripper. Wide range of stitch requirements.

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It will help us keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

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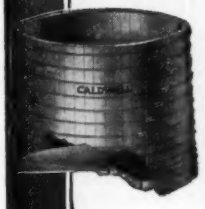

Caldwell offers the industry a complete tank service, including solid Stainless and Stainless-lined wood tanks and tubs, of any shape or size.

If you're thinking of installing or replacing a tank, let our 60 years' experience in building high-grade tanks serve you. *Send for our catalog, today!*

W. E. CALDWELL CO., Inc.
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SPINNING MACHINERY FROM INGOLSTADT THROUGHOUT THE WORLD!

DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT *Ingolstadt/Donau*

STOP
STATIC
SABOTAGE...

...with Herbert OXY COLD BARS

Static sabotages equipment and production. Alert and profit-wise companies protect their operations by insisting on **safe** Oxy Cold Bars . . . for **effective** cost-cutting static elimination.

Replace dangerous, inadequate and messy static elimination with the time and money saving advantages of Herbert Oxy Cold Bars!

For complete details, please send machine specifications.

HERBERT PRODUCTS INC.
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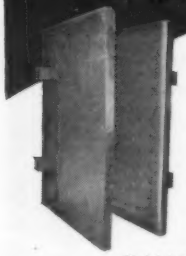
for the TEXTILE INDUSTRY . . .



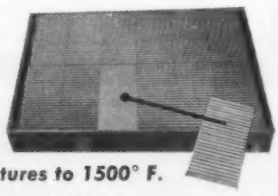
Model A-700

Thermomat RADIANT PANELS

Thermomat radiant panels are custom-made to the requirements of the textile industry and provide uniform, controlled temperatures from zero to 700° F. (See Model A-700, pictured.) Special models, which provide temperatures to 1000° F. are also available.

Suggested uses: Heat setting, heat stretching, tenter preheating, curing resin finishes, preheating and heating after treatment in dyeing Dacron with vat acid, permanent calendering and embossing.

Thermomat
CERAMIC BLOCK
High Temperature
HEATER



for uniform temperatures to 1500° F.

Thermomat CERAMIC BLOCK HEATERS, of heat-resisting ceramic material, are of blocks which may be multiplied in multiples of 5½" x 11¾" to units most nearly to required heat area dimension.

Closely coiled elements in the block, on ½" centers, eliminate hot spots and allow maximum watt density where high temperatures are necessary. Output can be controlled to 100% of watt density.

THERMOMAT COMPANY, Inc., 300 MAPLE AVE., TRENTON 8, N. J.
Gentlemen: Without obligation, please send us literature on THERMOMAT RADIANT PANELS and CERAMIC BLOCK TEMPERATURE HEATERS for the textile industry.

Name _____
Firm _____
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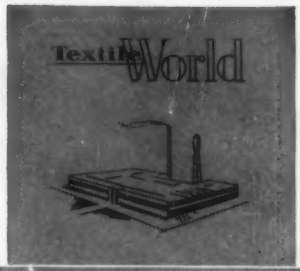
City _____ State _____

Thermomat CO., Inc. 300 MAPLE AVENUE, TRENTON 8, N. J.

250 For more information, write direct or use Reader-Service post card.



NEWS about MILLS

COTTON MILLS

American Velvet Co., Stonington, Conn., will spend more than $300,000 on further expansion during the next year and a half.

Arnall Mills, Sargent, Ga., has purchased Arnco Mills, Newnan, Ga.

Cosmos Imperial Mills Ltd., Hamilton, Ont., is purchasing equipment and machinery for painting striped canvas. A new humidifying system is being installed in weaving department.

Spartan Mills, Spartanburg, S. C., is building an addition in which 200 new looms will be installed. Construction and installation are expected to be completed by next spring.

Strickland Cotton Mills, Valdosta, Ga., is adding 100 new looms as part of an expansion and modernization program. Improvements are also being made in the card rooms.

WOOLEN AND WORSTED MILLS

Brownsville Woolen Mills, Brownsville, Ore., has been reorganized under the name of Jefferson Woolen Mills, Inc. Officers of the new corporation are: C. Elton Page, president; Leland Wells, vice president; Delmer A. Davidson, secretary; and Raymond E. Page, treasurer.

Huntingdon Woolen Mills Ltd., Huntingdon, Que., has purchased the plant of Horn Bros. Woolen Co., Lindsay, Ont., for $80,000. Operations are expected to resume at Lindsay soon.

Peerless Woolen Mills, Cleveland, Tenn., is constructing a new plant to house the operations now located in the former Hardwick Woolen Mills. The new building will include finishing operations as well as the preparatory and weaving operations. Completion is expected by June, 1956. Jack Anderson will be general manager, and Walter Qualman will be superintendent.

Porritts & Spencer (Canada) Ltd., Hamilton, Ont., plans to build an addition to the plant in the form of a second story.

SYNTHETICS MILLS

Aberfoyle Mfg. Co., Philadelphia, Pa., is building a new 40,000-sq.ft. spinning plant at its subsidiary plant, Rex Mills, Ranlo, N. C. No specific plans for the new mill have been disclosed.

Burlington Industries, Greensboro, N. C., will build a $100,000 addition to the weave room of the Altavista, Va., plant. Contract has been let to Holt Construction Co., Graham, N. C. Work will be completed in mid 1956.

Hoffner Rayon Co., Philadelphia, Pa., has completed a $200,000 expansion program. A 6,000-sq.-ft. addition was constructed as part of this program.

Klopman Mills, Inc., Greensboro, N. C., is building an addition to the plant of Ramseur Worsted Mills, Ramseur, N. C., which it recently acquired. Looms will be installed in the additional space. The building is expected to be completed soon.

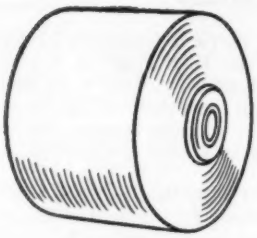
UTICA Knit Cloth

BARBER COLMAN

There is a difference in the warps — and in the way they weave

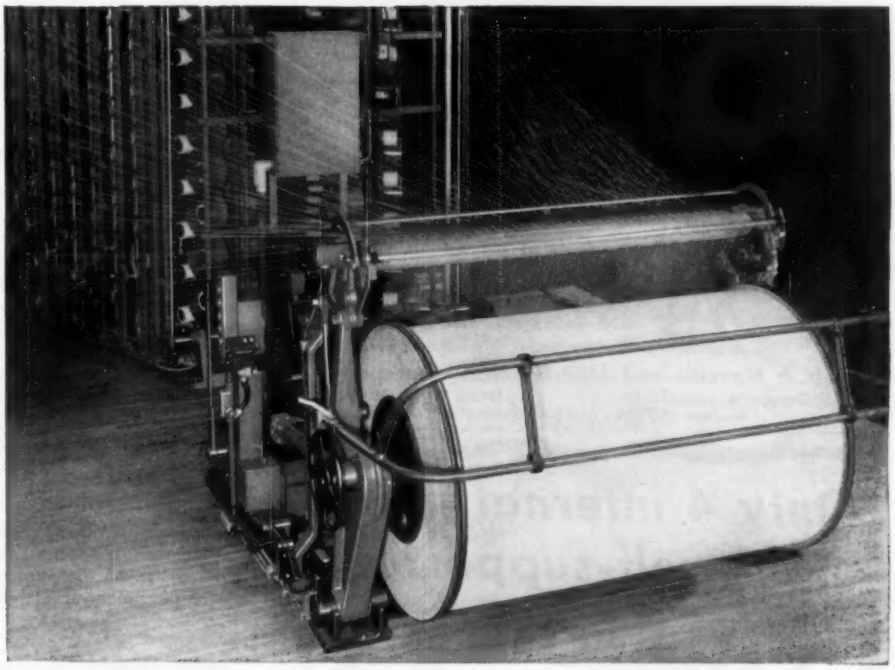
SUPER-SPEED

WARPER *and* CREEL FOR 40"-head BEAMS



LARGE PACKAGES HAVE ADVANTAGES IN THE STEPS THAT FOLLOW SPINNING

For example, with 24s yarn, a 12" bobbin with 3" ring will hold 15,000 yards, or *three times* as much as the standard bobbin. The new Type "D" Barber-Colman cheese holds 6½ lbs., or 120,000 yards, which is 2½ times as much as the standard Type "C" cheese. When these cheeses are wound onto slasher beams, the advantages vary with the size of the beam as follows: large cheeses provide 5 28"-head beams per cheese compared with 2 beams for standard cheeses; for 36"-head beams, the comparison is 3 to 1; and for 40"-head, also 3 to 1. In the slashing, assuming 1200 yards per loom beam, 28"-head beams provide 20 loom beams per set, 36"-head beams provide 33, and 40"-head beams 39. This reduces slasher creelings per 120-hour week to 5.68, 3.67, and 3.16 respectively. *The increase in loom beams per set, and the reduction in creelings per week, can provide substantial cost reductions in many mills.* If the large cheeses are used for twisting, similar advantages are gained, resulting in the winding of 2½ times as many twister bobbins per creeling.



The development of the large bobbin has led to the development of larger spooler packages which, in turn, has called for the development of a matching warper and creel. The new Barber-Colman Type "DW" Warper shown above will wind slasher beams as large as 40" head. It has all the features of the familiar Type "VW", plus several new ones such as a pivoted comb support which moves the comb forward as the beam fills. The driving drum, clutch, brake, and motor — all of which are larger and more rugged to handle the heavier loads — are now arranged back of, rather than beneath, the beam. The creel shown is not the new Type "DC" Creel but is the standard Type "VC", as the new Warper can be used with either the large *or* the standard package. *For further details, please write for descriptive literature, or ask your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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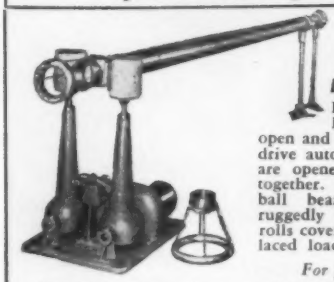
UTICA Knit Cloth Rolling Machine

(not a finishing machine)

UTICA'S Cloth Rolling Machine is designed for rough rolling knit cloth for storage or for rolling up damp cloth. It is made to take widths of 30", 36", 42", 48" and 54" (wider to order). Spreader guides are made of rubber. Has built-in varispeed motor drive, 3 ranges—20 to 50, 40 to 100, 80 to 200 yards per minute. Furnished with either fabric covered or metal plated rolls for rolling up damp material. Heavily built and well guarded for long trouble-free wear. It can be used in conjunction with the Utica Turning Pipe and Pipe Loading attachment. *Send for details.*

UTICA Turning Pipe and Pipe Loading Attachment



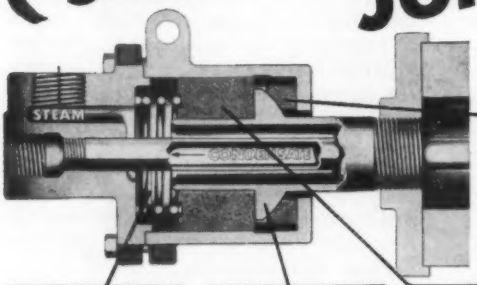
Made of brass or steel and slotted.

LOADING ATTACHMENT: Equipped with conveniently located handle on left side to open and close feed rolls. Built-in motor drive automatically turns off when rolls are opened up and starts when drawn together. Shafts have sealed-in-grease ball bearings. Completely guarded—ruggedly built—easy to clean. Loading rolls covered with rubber sleeves (leather laced loading rolls also available).

For further information write:

UTICA Novelty and Mill Specialty Company
2145 Dwyer Avenue **Utica 2, New York**
Builders of Textile Machines Since 1903

Only 4 internal parts in this self-supporting Johnson Joint



1. SEAL RING — of special carbon-graphite. Eliminates packing and oiling.

2. GUIDE — Also of carbon-graphite. Makes joint self-supporting.

3. NIPPLE — Rotates with roll, seals against ring.

4. SPRING — For initial seating only. In operation joint is pressure sealed.

With this 3000 Series Type S-B2 Joint, an assembly plate can be added at any time; it is used with the Johnson Syphon Elbow, to hold internal parts in position when the head is removed. Write for Bulletin No. S-2001.

The Johnson Corporation
814 Wood St., Three Rivers, Mich.

NEWS ABOUT MILLS — Continued

Lehigh Spinning Co., Allentown, Pa., has leased an additional 30,000 sq.ft. of manufacturing floor space adjacent to its present plant. The additional space will be used to increase the twisting, winding, and spinning facilities.

KNITTING MILLS

Airmaid Hosiery Mills, New Braunfels, Texas, is building an addition to its mill. The offices will be moved from Dallas as soon as the building is completed. The other operations of the mill will be moved and installed later.

Barlin Knitting Mills, Brooklyn, N. Y., has moved to 200 Liberty Ave., Brooklyn.

Beaunit Mills, Inc., New York, N. Y., has purchased the Fairview Mill of Julius Kayser & Co., Fountain Inn, S. C.

Cambridge Knitwear Mills Ltd., Winnipeg, Man., has purchased the former knitwear plant of R. M. Balantyne & Co. Ltd., Stratford, Ont. At the start of operations, 75 persons will be employed with an increase to 150 when full production is reached. The firm will manufacture all types of sweaters.

Carthage Knitwear Corp., Philadelphia, Pa., has leased 3,000 sq. ft. of space for storage of machinery at 608 Ranstead St.

Galax Hosiery Co., Galax, Va., has moved its knitting department back to Mount Airy, N. C.

P. H. Hanes Knitting Co., Winston-Salem, N. C., has built a 25,000-sq.-ft. plant in Galax, Va. The new plant will cut and sew men's and children's knitted underwear and sleepwear.

Harris & Covington Hosiery Mills, High Point, N. C., has completed a 20,000-sq.-ft. addition to its plant in High Point. The addition increases the total floor space to 65,000 sq. ft.

Harvey Hosiery Mills, North Wales, Pa., has started production in a 5,000-sq.-ft. plant. Production is expected to reach 600 doz. pairs a week.

Penn State Knitting Mills Corp., Allentown, Pa., has changed its name to Savoy Knitting Mills Corp.

Philadelphia & Reading Corp., Pottsville, Pa., formerly known as Philadelphia & Reading Coal & Iron Co., has purchased the Union Underwear Co.

Pittsburg Knitting Mills, Inc., South Pittsburg, Tenn., has been incorporated with a capital stock of $20,000.

Quitman Hosiery Mills, Inc., Jackson, Miss., has been incorporated with a capital stock of $100,000.

Shannon Hosiery Mills, Inc., Columbus, Ga., has purchased a building in Concord, N. C., that will be used for the manufacture of hosiery.

Standard Hosiery Mills, Burlington, N. C., will construct a large hosiery mill at Pittsboro, N. C. Contracts for construction were awarded to the Associated General Contractors of America.

AMEROTRON CORP. is building this new one-story mill in Barnwell, S. C. The 528,000-sq.-ft. plant is scheduled to be in operation early next year. Spinning, weaving, and finishing operations will be integrated in this plant.

Tip-Top Hosiery Mills, Asheboro, N. C., installed a new Bowman Model D automatic transfer-applying machine.

DYEING AND FINISHING PLANTS

Cone Mills Corp., Greensboro, N. C., has started construction on its new 600,000-sq.-ft. Carlisle finishing plant in Union County, S. C. Daniel Construction Co., Greenville, S. C., is the contractor.

Cranston Print Works, Cranston, R. I., has received a permit to build an addition to the dyehouse and an addition between two buildings.

Delaware Valley Dye Works, Philadelphia, Pa., has been incorporated to dye women's nylon hosiery. The firm will occupy about 2,500 sq. ft. at 2824 Helen St. Operations will begin soon. William J. Diamond is president, and Sidney T. Simon is secretary-treasurer.

Empire Rayon Yarn Co., Inc., New York, N. Y., will build a one-story, 90,000-sq.-ft. plant in Mt. Vernon, N. Y. Construction will begin soon. The new plant will increase its capacity for yarn converting and dyeing.

Kendall Co., Bethune, S. C., has started construction of a $5,000,000 finishing plant. The new plant will have a total of 321,000 sq. ft. of floor space. Completion is scheduled for the end of this year. All types of cloth will be finished.

Mt. Hope Finishing Co., Henderson, N.C., has dedicated its new finishing plant. The plant has a starting capacity of about 250,000 yds. weekly that will be increased to 1,000,000 yds. New equipment that has been installed includes 48 jigs and a double-strand crepe dryer.

Pleasant Valley Finishing Co., Pleasant Valley, N. Y., will double its finishing capacity with the construction of a $500,000 addition to its plant. The two-story building will cover 9,000 sq. ft. Two multicolor print and chenille combination Warner units have been purchased. It is planned to centralize the firm's overprinting and flocking operations in the new addition.

Pyramid Piece Dye Works, Inc., Paterson, N. J., has spent about $70,000 for a new curing unit and a Burlington machine in an expansion of its present finishing operations. The firm will now handle sheers and blends of such fibers as nylon, Orlon, and Dacron. Martin Mangerelli has been named head dyer to handle the added operations.

Rock Hill Printing & Finishing Co., Rock Hill, S. C., will construct a five-story building for storage. The cost is estimated at $1,450,000.

Royal Dyeing Co., New York, N. Y., has changed its name to Herald Piece Dye Works, Inc. Officers and personnel remain the same. The firm is moving to 332 E. 28th St., New York, N. Y.

Uncas Printing & Finishing Co., Mechanicsville, Conn., is constructing a new $2,000,000 plant as a result of destruction to the Mechanicsville plant by flood and fire.

FOREIGN MILLS

Frosino, Italy—A modern worsted-yarn mill will be established near Rome. Funds will be supplied by the World Bank Loan granted to develop industry in Southern Italy. The initial production will be 794,000 lbs. annually.

London, England—The David Whitehead cotton group will build the first cotton mill in the Northern Province of Nigeria. The Whitehead group also intends to expand its cotton mill in Southern Rhodesia to increase production there by 50%.

Yupangco & Sons, Inc., Manila, P. I., is expanding into cotton-textile manufacturing. The firm will build a spinning mill in the suburbs of Manila to bolster Philippine production of cotton yarns.

Look to NOONE for the Newest Slasher Cloth Developments

At last--an entirely *new* Slasher Cloth, with a well-cushioned body that assures far better slashing of yarn . . . unexcelled starch penetration . . . and greater resistance to abrasion! Extra high tensile strength minimizes tearing. Chemically treated--*at your option without extra charge*--to hold shrinkage at a minimum . . . combat chemical attack and increase service life. Made only from precision-blended, long length, finely selected wools, with rigid quality control in manufacture.

. . . and for All Your Industrial Textile Requirements

✓ CLEARER CLOTH . . . all wool or cotton back; highest quality—yet, low in price.

✓ ROLLER CLOTH . . . complete range of types, sizes, weights; all wool or part cotton.

✓ LAPPING CLOTH . . . cotton warp; either all wool, or part synthetic filling.

✓ OTHER SPECIALTY WOVEN FABRICS . . . developed at your request.

KENWOOD TEXTILE PRODUCTS

NOONE INDUSTRIAL FABRIC DIV. KENWOOD MILLS

Peterborough, New Hampshire

The oldest manufacturer of woven industrial fabrics in America

In a Stew Over Snagging Problems?

Hard, non-porous, highly polished laminated plastic parts by EPI have solved many snagging problems. Let EPI's engineering staff solve yours.

New England Representative:
J. H. Windle, Jr., 231 S. Main Street
Providence, R. I.

ENGINEERED Plastics INCORPORATED
Gibsonville, North Carolina

For more information, write direct or use Reader-Service post card. 253

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PLAIN AND SPIKE FEED BOX-PICKER

APRONS

SLATS

Plain & Pinned All Sizes & Shapes Hard & Soft Woods

Plain & Pinned Rolls & Cylinder

Lags

Tenter Plates

Picker & Shredder Teeth

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SPECIALIZING IN TEXTILES FOR OVER ONE-THIRD OF A CENTURY

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COST REDUCTION REPORTS
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GREENVILLE, S. C. FALL RIVER, MASS.

Control MAXIMUM PRODUCTION
with G. S. HAND TACHOMETERS and SPEED INDICATORS

1% Accuracy for any range from 30 to 100000 RPM or surface speed.
Antimagnetic durable mechanism;
Efficient repair service at moderate charges.

IDEAL FOR MOTORS - SHAFTS - SPINDLES - LOOMS - TURBINES - FOR TEXTILE AND POWER PLANTS

WRITE FOR ILLUSTRATED FOLDER

GEORGE SCHERR CO., INC.
200-F Lafayette Street • New York 12, N. Y.

MILTON
NYLON & RUBBER YARN
BEAMS

MILTON aluminum alloy Tricot and Section Beams feature CONTINUOUS WELDED CONSTRUCTION

Drop-forged, heat-treated aluminum alloy heads and extra heavy barrels withstand pressures of nylon and rubber warps.

WRITE FOR FREE BULLETINS
No. 54-S (Steel Beams) No. 49-A (Light Metal Beams)

MILTON MACHINE WORKS, INC.
MILTON • PENNA.

NEWS about MEN

Harold Ackerman has been named a director of A. D. Juilliard & Co., New York, N. Y.

Claude Arnaud has been named general manager of Greenville Finishing Co., Greenville, R. I.

L. F. Bois has been named overseer of weaving on the second shift at Tioga Weaving Co., York, Pa.

Gordie Boyd has been named production manager of the new Cone Mills Corp. Carlisle finishing plant now under construction in Union County, S. C. **Burton G. Campbell** will be resident manager.

Jack B. Boyter has been named superintendent of Dillon Spinning Corp., Dillon, S. C.

Lewis R. Briggs has been elected vice president and director of American & Efird Mills, Inc., Mount Holly, N. C.

William H. Burton, Jr., has been appointed manager of the Utica-Mohawk Group of mills of J. P. Stevens & Co., Inc., Clemson, S. C. **H. Taylor Moser** has been named general superintendent of the Clemson, S. C., and Seneca, S. C., plants. **Hugh G. Hurley** has been named superintendent of the Seneca, S. C., plant.

W. Ray Cannon has resigned as assistant superintendent of Cannon Mills Co. Plant No. 4, Kannapolis, N. C.

H. W. Capel has been elected to the board of Wabasso Cotton Co. Ltd., Montreal, Que.

Claud Cash has been named overseer of weaving and slashing at Fitzgerald Mills Corp., Fitzgerald, Ga.

CLIFFORD B. HAYES has retired as vice president in charge of manufacturing of the Cotton and Rayon Div. of Pacific Mills, Lyman, S. C.

James D. Chandler has been promoted to secretary of Arista Mills Corp., Winston-Salem, N. C.

Edward S. Cobb has resigned as director of purchasing at Sidney Blumenthal & Co., Inc., New York, N. Y.

K. B. Cook has resigned as vice president of Sunbury Textile Mills, Inc., Sunbury, Pa. **James O. Ellis** has resigned as plant superintendent.

James Daniel and **Joseph Polger** have been named vice presidents of Diamond Hosiery Corp., High Point, N. C.

William J. Fidry has resigned as head dyer and treasurer of Franklin Finishing Co., Paterson, N. J.

Julius G. Forstmann has been named chairman of Forstmann Woolen Co., Passaic, N. J. **James Wilson** has been elected president and chief executive officer.

Shirley D. Gardiner has retired as secretary and treasurer

CREATED FOR THE TEXTILE INDUSTRY

NEWS ABOUT MEN Continued

JOHN L. MORTIMER has joined the Automotive Fabrics Div. of Burlington Mills, Greensboro, N. C. Mr. Mortimer will be responsible for the automotive-fabrics operations of Burlington Mills.

of Fruit of the Loom, Inc., Pontiac, R. I.

Julius Green has been promoted to the position of vice president of Rose Mills, Inc., Philadelphia, Pa.

Robert D. Harvey has resigned as general manager of the Lindale, Ga., division of Pepperell Mfg. Co.

Harry Hodges, Jr., has been elected vice president and general manager of Wade Mfg. Co., Wadesboro, N. C.

Ernest A. Holyer has been named manager of London Hosiery Mills Ltd., London, Ont.

Harry W. Horstmann has resigned as assistant treasurer of Ames Textile Corp., Lowell, Mass.

J. L. James has been named superintendent of Locke Cotton Mills Co., Concord, N. C.

L. Comer Jennings has retired as president of Cowikee Mills, Eufaula, Ala.

Paul Jones has been elected vice president of Peerless Hosiery Co., N. Wilkesboro, N. C.

Gilbert M. Keller has been named administrative assistant to **C. H. Masland, III**, vice president in charge of engineering at C. H. Masland & Sons, Carlisle, Pa.

Edward E. Laufer has been elected a director of Flagg-Utica Corp., Utica, N. Y.

Louis F. Laun has resigned as assistant to the president of Bates Mfg. Co., Lewiston, Me.

Thomas E. Lawson has been named assistant manager of the Columbia, S. C., division of Pacific Mills.

Eaton Lloyd has resigned as vice president of Kenwood Mills, a division of F. C. Huyck & Sons, Rensselaer, N. Y.

W. H. Mellor, Jr., has been named vice president for general management and supervision at Virginia Woolen Co., Winchester, Va. **F. L. Largent, Jr.**, has been named vice president of administration.

Johnson W. Miller has been named manager of the Butler Hosiery Mills, Hartsville, S. C.

Raoul A. Philippon has been named overseer of slashing at Bates Mfg. Co., Androscoggin Div., Lewiston, Me. **William T. Harvey** has been named plant engineer at the Edwards Div. of the company, Augusta, Me.

Richard Ralph has been named superintendent of knitwear for Monarch Knitting Co. Ltd., Dunnville, Ont.

L. B. Ramsay has been elected president of Belding, Corticelli Ltd., Montreal, Que. **Homer H. Bland** has been named general manager.

Warren Ramsey has been promoted to superintendent of Gastonia Weaving Co., Gastonia, N. C. **Everett Merrill, Woodrow Stilwell**, and **Jennings Harwell** have been named overseers.

Henry Richardson has resigned as overseer of spinning at Seneca Knitting Mills, Seneca Falls, N. Y.

N. G. Robertson has resigned as chairman of the board and executive committee of Scranton Lace Co., Scranton, Pa. He will continue as a director and a member of the finance committee.

D. E. Ross has been promoted to superintendent of the Woodruff, S. C., plant of Abney Mills.

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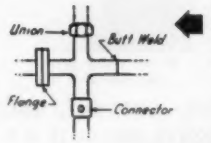

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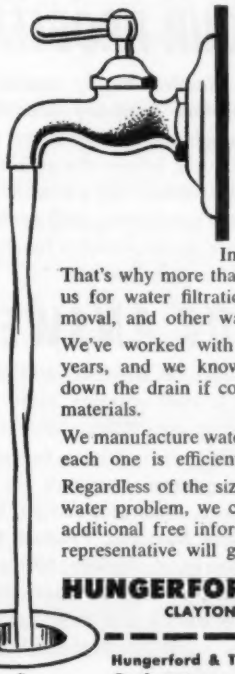

textile profits down the drain!

Impure water can do just that! That's why more than 500 textile mills depend on us for water filtration, water softening, iron removal, and other water conditioning.

We've worked with the textile industry for 55 years, and we know that textile profits can go down the drain if contaminated water stains your materials.

We manufacture water treatment plants of all sizes; each one is efficient, economical, and effective.

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HUNGERFORD & TERRY, Inc.

CLAYTON 9 • NEW JERSEY

Hungerford & Terry, Inc., Clayton 9, New Jersey

Gentlemen:

☐ Please send additional information on your water conditioning equipment.

☐ Please have representative call.

NAME .....

FIRM .....

ADDRESS .....

CITY ..... STATE .....

For more information, write direct or use Reader-Service post card.

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FOR TESTING
WINDING DENSITY

Created to solve the problem of maintaining uniform density for unwinding in later processes, the DUROMETER saves time and money. Tests density of windings on spools, cones, bobbins, cops and package dyeing tubes.

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If you need effective, highly readable, smartly illustrated company literature (booklets, pamphlets, manuals) to display your products, inform the public of your operations, attract key personnel to your plant, train employees, and perform any of the other communicative functions that are vital to your business . . .

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330 W. 42nd St., N. Y. 36, N. Y.
LOngacre 4-3000

NEWS ABOUT MEN — Continued

C. Eugene Rowe has been named secretary and treasurer of Dan River Mills, Inc., Danville, Va.

Joseph P. Rulli has joined M. Lowenstein & Sons, Inc., New York, N. Y. Mr. Rulli will be in charge of quality control for both cloth and finishing at all Lowenstein mills.

Eugene P. Schremp has been named to head weaving operations at Collins & Aikman Corp., Bristol, R. I. Mr. Schremp is a consulting editor for TEXTILE WORLD.

Fred C. Scribner, Jr., has resigned as secretary, treasurer, general counsel, and a vice president of Bates Mfg. Co., Lewiston, Me. Mr. Scribner has been nominated to serve as general counsel of the U. S. Treasury Dept.

Roy M. Stephens has been named a vice president of Dan River Mills, Danville, Va.

Frank Stubbings has been named superintendent of dyeing at Associated Textiles of Canada Ltd., Louisville, Que.

Miss Patricia Sullivan has been named assistant to the treasurer of Bates Mfg. Co., Lewiston, Me.

John W. Vanderwerff has been elected controller of Dan River Mills, Inc., Danville, Va.

Edward T. Martin has been named assistant controller.

Wilmer C. Westbrook has been named overseer of weaving at Riegel Textile Corp., Trion Div., Trion, Ga. Mr. Westbrook is a consulting editor for TEXTILE WORLD. Mr. Westbrook succeeds **C. D. Haygood,** who recently retired. **Edward A. Owens** has been named cloth-room overseer.

C. P. Wilson has been named superintendent of scheduling, warehousing, and shipping at the Fieldcrest Mills, Inc., towel mill, Fieldale, Va. **John S. Eggleston** has been named superintendent of the central warehouse.

V. Kieth Wilson has been named vice president of Peerless Hosiery Co., N. Wilkesboro, N. C.

George P. Winchester has been elected a director of Joseph Bancroft & Sons Co., Wilmington, Del. Mr. Winchester replaces **Earl S. Jenckes,** resigned.

A. Linten Zachary, Jr., has been named coordinator for the tufted-carpet activities of James Lees & Sons Co., Bridgeport, Pa.

Howard Zechman has been named superintendent of Slane Hosiery Mills, High Point, N. C.

OBITUARY

E. Percy Cofield, former superintendent of the Appleton Co., Anderson, S. C.

Heck A. Ford, 69, director of Walker Knitting Mills, New York, N. Y.

Charles P. Gulick, 70, honorary chairman of the board of Nopco Chemical Co., Harrison, N. J. Mr. Gulick was a founder and former president of the company.

John C. Haggarty, secretary-treasurer of Brook Woolen Co., Simcoe, Ont.

Lewis Hinkle, 62, a foreman at Bettersox Knitting Mills, Fort Atkinson, Wis.

Stonewall Jackson, 72, president and one of the founders of Morton Machine Works, Columbus, Ga.

Dr. H. E. Lonsdorf, 69, secretary-treasurer of Eagle Dyeing & Finishing Co., Mt. Holly, N. J.

Hollis B. McCormac, Jr., 39, president of Virginia Woolen Co., Winchester, Va.

Fred E. Palmer, 55, plant manager of the Industrial Rayon Corp. plant at Painesville, Ohio.

Byron A. Rath, former vice president of Rose Mills, Inc., Philadelphia, Pa.

EMPLOYMENT OPPORTUNITIES

he's working for you

THIS FELLOW IS TRAINED IN YOUR BUSINESS. His main duty is to travel the country — and world — penetrating the plants, laboratories and management councils . . . reporting back to you every significant innovation in technology, selling tactics, management strategy. He functions as your all-seeing, all-hearing, all-reporting business communications system.

THE MAN WE MEAN IS A COMPOSITE of the editorial staff of this magazine. For, obviously, no one individual could ever accomplish such a vast business news job. It's the result of many qualified men of diversified and specialized talents.

AND, THERE'S ANOTHER SIDE TO THIS "COMPOSITE MAN," another complete news service which complements the editorial section of this magazine — the advertising pages. It's been said that in a business publication the editorial pages tell "how they do it"—"they" being all the industry's front line of innovators and improvers — and the advertising pages tell "with what." Each issue unfolds an industrial exposition before you—giving a ready panorama of up-to-date tools, materials, equipment.

SUCH A "MAN" IS ON YOUR PAYROLL. Be sure to "listen" regularly and carefully to the practical business information he gathers.

McGRAW-HILL FOR BUSINESS

McGRAW-HILL PUBLICATIONS

EMPLOYMENT OPPORTUNITIES

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

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Positions Wanted
Part Time Work

Civil Service Opportunities
Selling Opportunities Wanted
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The advertising rate is $14.85 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

UNDISPLAYED

$1.20 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS to TEXTILE WORLD, 330 W. 42nd St., N. Y. 36, N. Y. for December issue closing November 18th

RESEARCH CHEMISTS for CELANESE

Please write complete details of background and experience, including initial salary requirements, to J. A. Berg. All inquiries in confidence.

1. MS or PhD in physical, or in organic chemistry with strong physical background, 0 to 5 years experience. For fundamental studies on cellulose and its derivatives and in development of manufacturing processes for cellulose derivatives.

2. PhD or equivalent in physical chemistry, 5 to 8 years experience, some of which should have been in fiber research. To assist in planning and coordinating problems in basic fiber research covering relationship of molecular and micro structure to mechanical, thermal and other physical properties.

These and other positions are open in Celanese's expanding research laboratories in Summit, New Jersey, a pleasant residential community within 30 miles of metropolitan New York.

Celanese CORPORATION OF AMERICA

Morris Court — Summit, New Jersey

WEAVE ROOM FOREMAN

Required with strong experience on Box Looms—Synthetic Weaving—Automatic and Pick & Pick work.

Experience must include modern Weave Room management practice and have good labor relations record.

Excellent opportunity—in growing New England location.

P-7927, Textile World
330 W. 42nd St., New York 36, N. Y.

REQUIRED—Senior Sales Executive

To handle space sales group well known International textile publications. Knowledge of raw commodity and textile industry essential. Reply Box **P-7970**, Textile World, 330 W. 42nd St., New York 36, N. Y., stating experience, remuneration required. All replies treated strictest confidence.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)
LOS ANGELES: 1111 Wilshire Blvd. (17)

POSITIONS VACANT

Jacquard card cutter wanted—experience on production work. Work on West Coast. P-7890, Textile World.

Opening for experienced man in standards department cotton textile mill located in North Carolina. Address reply to P-7920, Textile World.

Wanted: Knitters for tricot mill steady work. Overtime if desired. Modern mill. Pleasant working conditions. Bonus for Midnite to eight shift. P-8119, Textile World.

Engineering firm has opening for graduate engineer of project manager caliber. Must have background in textile manufacturing and finishing with plant layout and construction experience. Ability to contact clients important. Reply to: P-8105, Textile World.

Industrial Engineer: We have opening in our organization for an industrial engineer with experience in yarn spinning. Knowledge of personnel work desirable. Send complete resume to P-8157, Textile World.

POSITIONS WANTED

Position Wanted: Textile College graduate. B.Sc. textile chemistry dyeing and finishing. Supplemental studies in management. Laboratory experience in dyeing and evaluating all dyestuffs. Supervisory experience. Ambitious, age 30, married, veteran. Seeks responsible position. PW-8132, Textile World.

Plant Manager or Supt. of weaving. 27 years experience in pile fabrics, covering velvets, upholstery fabrics, toy plushes and transportation fabrics. Not connected with any pile fabric concern at present. PW-8073, Textile World.

Throwster. Supt. or manager. Twenty-five years experience. Throwing of all fibers for all trades knowledge of modern methods, costs, and incentives. Excellent references willing to relocate. PW-8017, Textile World.

Textile Supervisor. Expert in every kind of weaving (specialist in pile weaving) fit in loomfixing, acquainted with designing in towels, handkerchiefs and shirts. Experienced in dyeing preparation (winding, warping) several years experience in overseas cotton mills, seeks employment in U.S.A. Apply PW-7891, Textile World.

Tricot, simplex, cut-presser designer—full knowledge of chains and cut wheels. 2 years designing experience. PW-8032, Textile World.

POSITIONS OPEN

We can place—Worsted yarn mill SUPTS and asst. supts.; asst. supt. cot. mill; non woven fabric supervisor.

OVERSEERS for cot. spin., card. and weav.; cloth room; picking and garnetting; win. finish.; win. card.; wstd. card.; Fr. combing; wstd. spin.; cutting underwear and sweaters; cot.-rayon piece goods finish.; throwing; raw stock dye.; win. frame spin.; wool scouring; finish. woven felts.

SECOND HANDS win. card.; raw stock, piece and top dyeing.

MECHANICAL and plant engineers; master mechanics, designers and draftsmen; several chemists, one expert on resins; time study-industrial engineers; cost accountants; knit. mach. fixers (several); jacquard card cutter; velvet loom fixer; sewing mach. fixer.

SALESMEN for paper makers felts; chemical salesmen, one for New Eng., one for South; shoddy salesman.

If you are available for a good paying position in the textile field, it will pay you to have your application in our files. Negotiations are confidential. No fee to be paid unless you accept employment through our Service.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston 8, Mass.
Phone: Liberty 2-6457.
Over 55 Years in Business

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Provide an indexing or subject word.

Write it as the first word of your ad.

If it is a Position Wanted or Position Vacant ad, make the first word the kind of position sought or offered.

This will assure proper classification in the column.

The right is reserved to reject, revise or properly classify all Want Advertisements.

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BUSINESS OPPORTUNITIES — EQUIPMENT - USED or RESALE

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$1.20 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

PROPOSALS, $1.20 a line an insertion.

BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE:

The advertising rate is $12.65 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y. 36, N. Y. for December issue closing November 18th

FOR SALE

1—Soutex, Intermediate Broad Band Feed for 48" wide card. Good condition. (Davis & Furber supplies parts)

1—Davis & Furber plain 60 spindle jack spooler, Model 44, Serial 267 without compression roll, equipped with stop motion. Excellent condition.

1—#18E Merrow Crochet Machine with stand; Serial #38023. Never used except very little for sample purposes —Cost new $440.00.

1—#15K194 Singer Sewing Machine complete with table on casters, used for sewing spindle tapes on spinning frame machines.

JOHN B. DAVIDSON
WOOLEN MILLS
EATON RAPIDS
MICHIGAN

FOR SALE!

1—E & H 54" Cloth Folder, 46"-72" Folds
1—Textile 5-Roll 60" Plain Rolling Calender
1—Butterworth 40' long, 50" cloth Clip Tenter
20—Luther and Morrison 1, 2 and 3 Brush Thread Dressers
1—Obermaier 100# Stainless Steel Pressure Type Extractor
15—Universal #50 Winders, Hot Waxing Attachments

(All located in North Carolina)

JAMES E. FITZGERALD
10 Purchase Street — *Tel. 8-5616* — Fall River, Mass.

MILLER MACHINERY CO.

66 RAILROAD AVE. PATERSON, N. J.
Tel. Sh 2-5467-8

Textile Machinery and Supplies

BOUGHT AND SOLD
Warpers • Winders & Quillers • Looms

TEXTILE AUXILIARIES

"WE Buy, SELL, APPRAISE and LIQUIDATE"

ALL OUR EQUIPMENT IS RECONDITIONED IN OUR WAREHOUSE FOR IMMEDIATE DELIVERY

1—Butterworth—60 Ton—5 Roll, 50" Face, Calender, practically new for Synthetics or Cotton Cloth, with 3 Spare Wool and Paper filled Rolls. pump and accumulator and motor.

1—30' x 72" wide, Butterworth Over and Under, Pin Tenter Frame, excellent condition.
1—60" 2 Roll Padder, 17" Diameter, Rubber Rolls
1—72"-15 Ton "Hunter" Hydraulic Padder, Rolls 19" Diameter X 72" Face Rubber Covered.

WE HAVE SPARE PADDER, CALENDER AND TENSION ROLLS OF ALL WIDTHS AND LENGTHS, ALSO NEW AND USED TENTER CHAINS, ALL MAKES.

"WE SPECIALIZE IN FINISHING MACHINERY"

Office and Warehouse
146 West River Street

Telephone
Dexter 1-9650 *Dexter 1-8837*

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used and rebuilt

KNITTERS — RIBBERS — LOOPERS
CYLINDERS — DIALS — TRANSFERS
HOSIERY NEEDLES AND PARTS

JOS. BRESANI
N. W. Cor. Hancock & Somerset Streets
Phila. 33, Pa.

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25—STAINLESS STEEL Storage and Mixing Tanks, from 30 gal. to 10,500 gal. sizes.

15—STAINLESS STEEL Steam Jacketed Kettles, from 40 gal. to 1350 gal. size —some with mixers.

12—Centrifuges and Centrifugals—Bird, DeLaval, Sharples, Fletcher, Tolhurst, AT&M, etc.

PERRY EQUIPMENT CORP.
1430 N. Sixth St.
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ST 4-7210

Gaines

FOR BEST VALUES IN REBUILT TEXTILE MACHINERY

PARTIAL LISTING

200—UNIVERSAL #50 WINDERS
1—SCOTT MODEL Q TESTER 2000 LB. CAPACITY
1—16 SPINDLE SARGENT BALLING MACHINE
1—20 SPINDLE FOSTER MODEL 102, 3°30' CONES
1—UNIVERSAL 100 SPINDLE ROTO-CONER, TUBES & CONES
2—UNIVERSAL 60 SPINDLE ROTO-CONER, PAPER CONING
1—20 SPINDLE UNIVERSAL ROTO-CONER

Gaines

TEXTILE MACHINERY CO., INC.
141 W. 17TH ST., NEW YORK 11, N. Y.

N. Y. C. REPRESENTATIVES FOR NEW UNIVERSAL WINDING CO. MACHINERY

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parts, or machinery manufacturing business now selling to textile or allied trades. Write in strict confidence to

BO-7930, Textile World
330 W 42nd St., New York 36, N. Y.

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REGISTERED PATENT ATTORNEY
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40,000 SPINDLES

AVAILABLE PER WEEK TO MODERNIZE USED FRAMES

All types of precision, ball bearing spindles offered to modernize used frames. Little capital required. Large power savings expected. Manufactured by Platt Bros. world's largest maker.

Write for bulletin

ATKINSON, HASERICK & CO.
211 Congress St., Boston 6
1649 W. Morehead St. Charlotte 2

LIQUIDATING

For Immediate Removal

PARTIAL LISTING

6—60" JIGGS, STAINLESS STEEL.
2—70" JIGGS, STAINLESS STEEL.
8—50" JIGGS, STAINLESS STEEL.
1—68" PALMER-QUETCH UNIT.
2—50' x 60" TENTER FRAMES, S. S. CLIPS.
1—PUP TENTER FRAME.
1—2 COLOR 45" PRINT MACHINE.
1—AGER, 70" WIDE ROLLS, 20' LONG.
2—60" EXTRACTORS, STAINLESS STEEL BASKETS.
1—HEAT SETTING UNIT, 66" CLOTH.
1—62" SCHREINER CALENDER, 13½" & 27" ROLLS.
3—CALENDERS, 50"-66", HYDRAULIC & LEVER SET.
2—BUTTON BREAKERS, 50"-60".
2—12' ENCLOSED DYE BECKS.
4—DRY BOXES, 8 FAN-18 FAN.
1—50" PADDER, 12" & 16" RUBBER ROLLS, LEVER SET.
3—50"-70" SEMI DECATORS.
5—10' SLACK LOOP WASHERS, STAINLESS STEEL.
2—SANFORIZERS, DUPLEX AND SIMPLEX.

We Buy and Sell From A Single Machine To A Complete Plant.

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Greenville, South Carolina
Tel: 2-3561

IPA

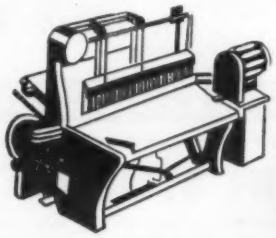
NORTHERN OFFICE
INDUSTRIAL PRODUCTS OF AMERICA
140 Market St., Paterson, N. J.
Tel: Sherwood 2-6614 *Cables:* Texindus

FOR SALE

1 Foster Winder Model 23-A Cones, 10" Travis. 60 spindles—Excellent.
3 Foster Doublers Model 57.
1 Saco-Lowell 10x5 FS-2—1949—motor driven—114 spindles.
1 Saco-Lowell 10x5 FS-2—1947—motor driven—54 spindles.
1 Whitin late model 24 spindle 12x6 Slubber.
1 Saco-Lowell 1952 Model 4" gauge, 84 spindle spinning frame with Z-2 drafting.
1 Saco-Lowell 1952 Model 3½ gauge, 96 spindle spinning frame with Whitin Casablanca Drafting—for long staples, having 1⅜" front roll.
2 Saco-Lowell Spoolers Model 5, built 1947, Ball Bearing, Spindles and Tape tightener Pulleys, 6" Gauge.
1 Abbott 8 spindle Back Winder.
1 Smith Drum Extractor for Barber-Colman cheese—late model—slightly used.
1 Saco-Lowell 1948 Model Sliver Tester for Wool—3 Grooves.

H. C. SKELTON, Inc
Textile Machinery
Telephonne 1009
UNION, SOUTH CAROLINA

FOR SALE
70—Loom Mill operating elastic fabrics, upholstery materials, spun silk suitings, etc.
OWNER RETIRING—FULL OPERATION PRINCIPALS ONLY
FS-7940, Textile World
330 W. 42nd St., New York 36, N. Y.



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•

SEARCHLIGHT Equipment Spotting Service

This service is aimed at helping you, the reader of TEXTILE WORLD, to locate used and surplus new textile machinery and equipment not currently advertised. (This service is for user-buyers only.)
First, read the dealer ads on the "Searchlight" pages. A 5-minute study may locate the equipment now.
Second, send in the specifications of the equipment wanted on the coupon below, or on your own company letterhead, to
Searchlight Equipment Spotting Service
c/o Textile World, 330 W. 42nd St., N. Y. 36, N. Y.
Your requirements will be brought promptly to the attention of the used equipment dealers advertising in this issue. You will receive replies directly from them.

Searchlight Equipment Spotting Service
c/o Textile World, 330 W. 42nd St., New York 36, N. Y.
Please help us locate the following used equipment:

.....
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NAME ..... TITLE .....
COMPANY .....
STREET .....
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MODERN TEXTILE MACHINERY AND EQUIPMENT

For Sale at the Following

LIQUIDATION SALES

Partial Listing:

AMES TEXTILE CORPORATION

Southbridge, Mass., Spinning, Weaving, Dyeing and Finishing

14—Warner-Swasey Weaving Machines, 80", 8 harness,—1950.
9—S.L. Twisters, 200 spdls., 3" ri., 4" & 5" ga., tape drive.
166—C & K W2 Looms, 82", 20 harness dobby, M. D.
1—Bachmann-Uxbridge Air Slasher, Model A, 80",—1950.
4—Whitin-Schweiter Winders, 24 spdls. each,—1945.
2—D & F High Speed Dressing Reels, 108",—1948.
1—Riggs & Lombard Continuous S. S. Washer,—1952.
6—Riggs & Lombard S. S. Closed Dye Boxes, 6' wide, 1942,—'52.
1—Birch Open Width Washer, 4 compts., 82" wide.
1—Arlington S. S. Open Width Washer, 4 compts.,—1950.
1—Riggs & Lombard Pneu. Padders, 82" wide,—1948.
1—Kenyon Pin Tenter Dryers, 40' long x 84",—1947.
1—Parks & Woolson Davidson Shear, 72" wide,—1948.

RAYLAINE MILLS, INC.

Manchester, N. H., Spinning, Weaving and Warping

1—Whitin Staple Cutter, Model B, 8" blade.
46—Whitin & Lowell Cotton Cards, 40", 27" doffers.
1—Abington Card Stripping System, 25 HP,—1947.
3,000 Spdls.—Whitin Tape Drive Spinning Frames, Model B & F 3¼" ga., 2" ri., 39" frame.
2—S.-L. Tape Drive Ring Twisters, 4½" ga., 3½" ri., 104 spdls. ea.
1—Universal Roto-Coners, 120 spdls., cast iron,—1945—'47.
132—Spindles—Within-Schweiter Winders, 12 spdl. Secs.,—1945—'48.
1—Bachmann-Uxbridge Air Slashers, Model A, 80", D.C. drive,—1950.
24—C & K W3 Looms, 82", harness,—1954.
24—C & K W2 Looms 82", 20 harness,—1931.

CLUETT, PEABODY & CO.

North Grosvernordale, Conn., Spinning & Weaving

4—S.-L. #7 Feeders, 41" wide,—1938, '48.
2—S.-L. #7 Two-Bag Air Filters.
4—S.-L. Single Process Pickers, 3 Beaters, 3—#5 Air Cleaners.
56—S.-L. Saco-Pettee & H & B 40" Cotton Cards.
92—Del. S.-L. Controlled Draft Drawing—1952.
4—S.-L. Model 37 Lap Winders,—1949.
33—S.-L. Double Head Combers, 12 heads ea., age 1941.
26,000 Spdls.—Whitin & H & B Spinning Frames.
2—Abbott Quillers, 130 spdls., w/hoist—1953.
1—Barber-Colman Quiller, 30 spdls., Model EBW,—1949.
6—Foster Model 102 Winders, 100 spdls. ea., w/Springs.
2—Bachmann Uxbridge Gentle Air Slashers, 60" headway—1952.
1—Manton Gaulin Homogenizer, Type 300, CGD,—1949.

BARBET MILLS

Lexington, N. C., Spinning, Knitting, Dyeing & Bleaching

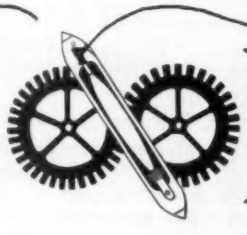
1—S.-L. Single Process Picker, 40" wide.
41—H & B Cotton Cards, 40" wide, B-B Comb Boxes.
6—Mason Cotton Cards, 40" wide, B-B Comb Boxes.
1—Universal Rotoconers, Model #44, 120 spdls.—1941—'47.
5—Hinn. Stainless Dye Boxes, 2-12"; 1-8'; 1-4'; 1-3';—1950.
1—Greenville S. S. Bleaching Unit—1950.
1—Lummus Hydraulic Upstroke Baling Press—1948.
5—Supreme MJ Knitting Machines.

GOSNOLD MILLS

New Bedford, Mass., Spinning & Weaving

23—H & B Cards, 40" wide, 26" doffer, 12" coiler, 110/120 wire.
80—H & B Spin. Frames, Whitin Long Draft, 3" & 2¾" ga.—1948.
46—C & K C6 Looms, 60" cloth, 4 x 1 box, dobby,—1946.
45—C & K C6 46" & 50" cloth, 4 x 1, dobby,—1941.

Detailed Catalogues and Descriptions Will Be Mailed Upon Request



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2—Hadley Spinning Roll CLEANING MACHINES, with circular wire brushes.
20—Schlumberger Delete Wool COMBING MACHINES, Aprons 12¾" width.
2—D&F Tape CONDENSERS, 60" single rub, 4-bank, 96-120 end.
1—Hydrolit Portable Yarn CONDITIONER, with 2 Extractors.
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1—P&S Wet Stock Picker FEED 45".
3—Whitin 48" Intermediate Broadband FEEDS, J-1 Card Conveyor, F-1 Feed Tables.
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2—D&F 60" Card Traverse GRINDERS, sleeve bearing.
4—C&K W-3 automatic LOOMS 76", with multipliers, mtrzd.
36—C&K Veri-best automatic 82" LOOMS, mtrzd.
24—C&K Automatic W-2-82" LOOMS, mtrzd.
32—C&K Automatic W-3 - Worsted 82" LOOMS, mtrzd.
1—C&M MIXING PICKER, 12 bar, 48".
1—D&F Iron Fearnaught MIXING PICKER 48" x 54" dia. cyl.
1—Suter Skein Yarn REEL, 6 fly, holds 10 skeins, mtrzd.
1—Toledo no-spring Cloth SCALE, 180 lb. cap.
1—S&F GARNETT SHREDDER 60", metallic clothing.
1—G&Y Roving Spool STRIPPER for Spools 56".
1—Terrell automatic Bobbin STRIPPER, Model L, mtrzd.
1—Scott YARN TESTER, Model X5, mtrzd.
1—B-C Model K Portable WARP TYING MACHINE.
1—B-C Model 8E WARP TYING MACHINE.
1—D&F 80" WARPER, Brass Heavy Type Pinning Plate Rails.
1—Whitin Model MS FILLING WINDER, 36 spdls.
2—Foster Model #102 TUBE WINDERS, 80 spdl. units.
2—Foster Model #102 CONE WINDERS, 80-88 spdl. units.
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14—space—4 shuttle—motorized—complete—like new condition—C & K head motions.

HEAVY DUTY C & K WEBBING LOOMS
12 space.
Dual head motions.
Motorized.

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8 can, 5 can, 4 can. Complete with calenders, quetches. Motorized.

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Floor type cam motion.
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½ lb. pkge. 90 spindles per machine. 5" spacing. 3" Eadie rings. Double 2" feed rolls. Excellent condition.

WHITIN SCHWEITER QUILLERS WITH AUTOMATIC LOADERS
2—42 spindle 1945 Model with 2, 1950 Automatic Loaders. All set up—ready for operation. Condition excellent.

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6 spindles per machine. Motorized in groups of 12 spindles. L-drive. Pineapple attachments. Gear gain. Anti-wear tensions.

8—ATWOOD MODEL 110 1948 1 LB. TWISTERS
204 spindles each. 6" gauge—2 motors per machine—Nylon spindle bobbins available with machines.

1—800 END SIPP-EASTWOOD MAGAZINE CONE CREEL

2 LATE TYPE SHEARING MACHINES
1—1950 Hermas
1—Parks & Woolson

100 C & K S-6 LOOMS 56" and 72"
2 x 1 and 4 x 1 boxes. All looms equipped with auxiliary equipment. Looms in excellent condition.

9 ATWOOD UNIRAIL 1 LB. TWISTERS
1952 model—almost new 184 spindles each, 5½" gauge—2 motors per machine — Nylon spindle bobbins available with machines.

All items subject to prior sale

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This is only a partial listing

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214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

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2—P. & S. 48" Picker Feeds, 1950
2—Sargent Mod. 20 36" Ceiling Condensers, 1948
1—Fidelity Skein Reels, 1949
1—P. & S. Truck Skein Dryer, 1947
1—P. & W. 84" x 36" Cloth Steamer, 1950
1—P. & W. 72" x 36" Semi-Decater, 1948
1—P. & W. 74" Cloth Rolling Mach., 1952
2—Gessner 72", 18 roll, D. A. Nappers, 1942
1—Gessner 66" Hydrolizer complete, 1942
24—C. & K. 66", W3 Conv. Looms, 1946
2—Whitin, 4½" Ring Twisters, Mod. R, 1951
2—W. S. Pin Drafters, can del'vy, 1952
1—Schofield 72" Carding Picker, 1950

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two 78-space, two 88-space and pert. equip.
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56—C&K, 5-6, 56" R.S., Dobby. 1948
7—Atwood Model 110 Uptwisters, 1 Lb., 1947
68—C&K, C-4, 80" R.S., 4 x 1 Auto Conv. to 4 x 4, Dobby. 1950
20—C&K, 4 x 4, Gem Head, 72"
65—Draper 46" D, Dobby. 1947
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1—Johnson Slasher, 60" x 30", 7-Drum Cotton System

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1—50" Werner S.S. Jigg.....$500.00
2—50" S.S. Jiggs
2—50" S.S. Jiggs, totally enclosed $800.00 each
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1—C & M 65" Flat Folder.....$350.00
1—V. V. 60" Decatur
1—Johnson 7 Can Slasher.....$1200.00
2—Rodney-Hunt Tru Shade S.S. 72" 8 String B.B. Piece Dye Kettles, 8 Bar Hump Reel .....$1500.00 each
1—3 Roll 68" Hydraulic 20 Ton Calender $4000.00
1—L-5 Nash Pump & Motor
4—L-1 Nash Pumps
1—60" 2-rubber roll Quetch, rubber roll expander, S.S. Pan.....$600.00
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1—Fairbanks 5000 lb. Scale
1—Automatic Tow Truck

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10,000—Dixon Lubricating Saddles
5,000—Lap Sticker, new denim cover
10,000—Spindles, Tape drive conversions
1—H. & B. Twister, 5½" gauge, 4½" ring, Motor Driven
2—Entwistle Warpers, 54", Drum driven
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3—Universal Creels, 392 & 400 end, single tension
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200—Cone Holders for Universal GF Winders
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Of Textile World published monthly, with 13th issue in September, at Albany, New York for October 1, 1955.

1. The name and address of the publisher, editor, managing editor, and business manager is: Publisher McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 36, N. Y.; Editor, Prentice M. Thomas, 330 West 42nd St., New York 36, N. Y.; Managing editor, Louise E. Wilie, 330 West 42nd Street, New York 36, N. Y.; Business manager, Thomas Macaluso, 330 West 42nd Street, New York 36, N. Y.

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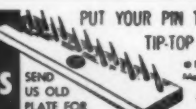

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2—6 spindle #6 or #8 Universal
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W-8063, Textile World
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is an index of reliable sources for Used and Rebuilt textile machinery. If you don't see what you want—ask for it. Ask the advertisers. They are constantly adding to their stocks and may have acquired just what you need.

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Inc 14 James Hunter 60" x 30" 6cyl machines drag and shoddy pickers, lumpers, bagging machines, stock cutters, shredders, blenders, 20 spare cylinders with new clothing, Toledo Dial Scales, etc.

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D & F 106 Pinless warp reels inc. compressors rebeamers M.D.
D & F 102" H. S. Warping reels. M.D.
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Gessner Teasel Gigs
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Hunter 5 section cloth carbonizer dryer with controls
Soapers
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82 x 90" Beams with 24" to 30" Mosserg steel or Allen wood heads
Lindsey-Hyde Adjustable Reels, 36 x 54" B & S yarn reels
Benoit system

24 Warner Swazey Pin drafters (Duals)
6 Warner Swazey balling heads
20 Warner Swazey (quads)
1 Warner Swazey Pacific Convertor 1953

WORSTED

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Sergeant 4 & 5 Bowl 48" Scouring trains
24 Frames Whitin F.W 3 Tape drive spin
Frames 200 sp. ea 4½" gau. 3" Herr ring
Bijur Lubricating system 15 H.P. 550 V. with variable speed drive 1946, 6 as above 1944
36 Whitin BW 200 sp. 4" Ga 3" Ring 1946
Foster #57 Doublers
Foster #102 winders

WORSTED

Atwood twisters Mod 10B 4" Ring
Abbot Quillers 120-140-160 Sp with auto loaders
Foster Mod 25 Doublers
Foster Mod 55 Doublers
Entwistle 66" Warpers Cocker creels 1200 ends 1947-1950
2 Saco-Lowell hot air slashers 84" Mod C 3345 with A & G dryers, Brown Temp. controls Minn-Honeywell size temp. controls, 2 double S.S. size boxes 14 beam creel motorized complete with 2 ea. M.D. Kettles S.S. Jacketed
224 C. & K. W3 4 x 1 76" Looms 1936-1945 9½" Bobbin
48 C. & K. W3 4 x 1 82" Looms 1936
96 C. & K. W3 4 x 1 82" Looms 1944
72 C. & K. W3 Convertible 82" Looms 1936
36 C. & K. W3 Convertible 82" Looms 1936 9½" Bobbin
66 C. & K. W2 4 x 1 82" Looms 1947
Windle Measuring with Toledo cloth scale
Hunter & R & L } Sample S.S. dye kettles also 4, 6 & 8 string
Hunter Fulling mills #21 Rubber Rolls S.S. Fittings
R & L Fulling mills Rubber Rolls S.S. Fittings
R & L Wilson Fleet Line Yarn & Cloth Steamers
P & W 66 and 72" 3 & 4 Blade Centurial Shears
P & W Dixie Shears 80½
P & W Davidson Shears 3 Blade
Voelker Rotary cyl. cloth press
Gessner Spot Proofing Machines
Vigoreaux Top Print Machines
Abbott 6 & 18 Spool Top Dye kettles
Phila. Hurricane Yarn Dryer size 11½ x 9 x ½ x 10½
Hunter Dolly Washers
R & L Continuous Washer inc. squeeze rolls, Gessner Folder, scray and soaper
Hunter Neutralizer 6 Tanks 78" mill #B 30 with squeeze rolls, folder—Hydraulic water lifts for rolls Reeves Drive & Motors—Continuous Cloth Washer.
Gessner Hydrolizer size 72, 1946
P & W 2 & 4 cyl. Brushing Machines
Birch Bros. tacking machines
Butterworth 4 Burner Singeing machine, using city gas 77½" burners M.D. Hood & Dust removal exhaust system & folder.
Franklin Process 500 Pd package dyeing machines S.S. & Monel
Houston Portable sewing machines
Birch Bros. Portable sewing machines with #60 D3 B merrow heads
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ACTION

American Council To Improve Our Neighborhoods

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Clinton Foods Inc. 194

Index to ADVERTISERS Keyed by PRODUCT

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B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply.
C. Chemicals and Dyestuffs.
D. Cleaning Equipment.
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies.
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O. Materials and Components for Machinery and Equipment.
P. Materials Handling, Packaging, and Shipping Facilities.
Q. Power Generation and Transmission (see also Electrical Equipment).
R. Weaving and Warp Preparation Equipment and Supplies.
T. Yarn-Production, Twisting and Winding Equipment and Supplies.

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Abbott Machine Co.	231	T
Acrometal Products, Inc.	243	T
Allegheny Ludlum Steel Corp.	193	O
Allen Mfg. Co.	236	O
Allentown Bobbin Works, Inc.	224	T
Allis Co., The Louis	43	F
American Air Filter Co., Inc.	32	A F L R
American Crayon Company	249	F L R
American Lava Corp.	171	L RT
American Schweiter Co.	44	T
American Steel & Wire Div.	203	O
American Viscose Co.	74-75	P
Antara Chemical Div., General Aniline & Film Corp.	19	C
Appleton Machine Co.	239	F
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Boger & Crawford	181	G
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Brown & Son Inc., W. M.	232	N P
Buckeye Cotton Oil Co. Cellulose Div.	167	G
Butterworth & Sons Co., H. W.	175	E
Caldwell Co., W. E.	249	B E
Carbide & Carbon Chemicals Co., Div. of Union Carbide & Carbon Corp.	202	C
Celanese Corp. of America Chemical Div.	77	C
Yarn Div.	142	G
Century Electric Co.	20-21	F
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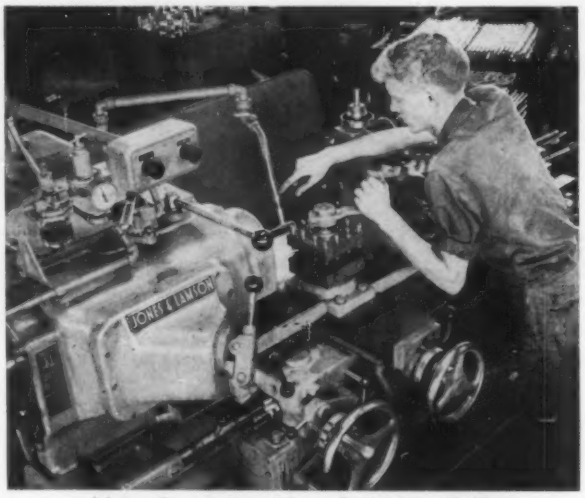

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Columbia-Geneva Steel Div.	203	O
Columbia-Southern Chem. Corp.	209	C
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Corn Products Refining Co.	229	C
Crane Co.	64	H
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Crompton-Richmond Co., Inc.	247	N
Crucible Steel Co.	164	O
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Cutler-Hammer, Inc.	16	F
Darnell Corp., Ltd.	244	P
Dary Ring Traveler Co.	234	T
Dayton Rubber Co., The Textile Div.	38-39	RT
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Dinsmore Mfg. Co.	249	E
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Fidelity Mach. Co., Inc.	18	L T
Finnell System, Inc.	46	D
Fiske Bros. Refining Co., Lubriplate Div.	238	M
Fletcher Works Inc.	66	R
Foster Machine Co.	151	T
Foxboro Co., Inc.	58	K
Gaston County Dyeing Mach. Co.	214	E
Gastonia Roller Flyer & Spindle Co., Inc.	268	T
Gates Rubber Co.	22	Q
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General Electric Co.	48	F Q
General Tire & Rubber Co., Industrial Prods. Div.	205	RT
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Guider Specialty Co.	242	E
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Hayssen Mfg. Co.	10	P
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Heyden Chem. Corp.	159	C
Hinde & Dauch	17	P
Hooker Electrochemical Co.	217	C
Howard Bros. Mfg. Co.	50	T
Hungerford & Terry, Inc.	255	B
Huyck & Sons, F. C. Noone Industrial Fabrics Div.	253	E
Hyatt Bearings Div., General Motors Corp.	183	O Q
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Industrial Rayon Corp.	72-73	G
Industrie-Werke-Karlsruhe	205	E
International Business Machines Corp.	60	N
Ives Co., Inc., L. T.	140	L
Jacobs Northern & Southern Div., E. H.	176	R
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Keever Starch Co.	225	C
Kennett Equip. & Machry. Co.	208	P
Kidde & Co., Inc., Walter	215	T
Kidde Mfg. Co., Inc.	197, 235	L
Klauder-Weldon-Giles Mach. Co.	8	E
Kuljian Corp., The	256	N
Southern Shuttles Div. Steel Heddle Mfg. Co.	60	

Lane & Bros. Inc., W. T.	270	P
Laurel Soap Mfg. Co., Inc.	222	C
Link-Belt Co.	7	Q
Lockwood Greene Engineers, Inc.	36	N
Loper Co., Ralph E.	254	N
Lubriplate Div., Fiske Bros. Refining Co.	238	N
Luddell Mfg. Co.	136	E
Main & Sons, Inc., Robt. A.	254	T
Malina Co.	240	G
Manhattan Rubber Div.	42	Q
Marquette Metal Prods. Co.	162	T
Mathieson Chemicals Olin Mathieson Chem. Corp.	2	C
M.-B. Products Co.	243	H
McBride, Ed. J.	6	R
Meadows Mfg. Co.	216	Q
Meese, Inc.	267	P
Milton Machine Works, Inc.	254	R
Monsanto Chemical Co., Inorganic Div.	148	C
Plastic Div.	55	C
Mount Hope Machinery Co.	61	E
Nash Co., J. M.	210	RT
National Aniline Div., Allied Chem. & Dye Corp.	33	C
National Tube Div.	203	O
Naugatuck Chemical Div. U. S. Rubber Co.	31, 173	C
N. Y. & N. J. Lubricant Co.	62	M
Noone Ind. Fabrics Div. of F. C. Huyck & Sons	253	E RT
Nopco Chemical Co.	57	C
Oilgear Co., The	27	H Q
Olin Mathieson Chem. Corp. Industrial Chemicals Div.	2	C
Onyx Oil & Chem. Co.	71	C
Ordinance Gauge Co.	210	L
Pabst Brewing Co.	246	C
Page Fence Association	220	B
Penick & Ford, Ltd., Inc.	226	C
Perfecting Service Co.	218	H
Platt Bros. Sales Ltd.	189	T
Pneumafil Corp.	155	T
Potts Co., Horace T., Speedline Stainless Steel Fittings Div.	255	H
Powell Co., Wm.	78	H
Powell Valves	78	H
Proctor & Schwartz Inc.	68	E R
Pure Oil Co.	65	M
Pyrene-C-O-Two Co.	76	B
Raybestos-Manhatten, Inc. Manhatten Rubber Div.	42	Q
Reeves Pulley Co.	188	Q
Refined Products Co.	2nd Cover	C
Reynolds Metals Co. Aluminum Yarn Div.	14	G
Roberts Co.	9	T
Rohm & Haas Co.	169	C
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Ryerson & Son Inc., J. T.	206	O
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Schweiter Ltd.	44	T
Scott Testers, Inc.	269	K
Shell Oil Co.	49	M
Shore Instrument & Mfg. Co., Inc.	256	K
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Smith, Drum & Co.	54	E
Societe Alsacienne De Constructions Mecaniques	191	T
Solvay Process Div., Allied Chem. & Dye Corp.	233	C
Sonoco Products Co.	29	T

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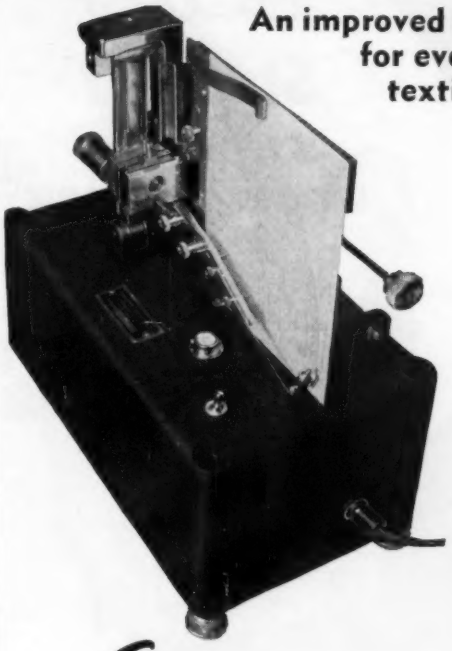

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Supreme Knitting Machine Co., Inc.	219	I
Talcott, Inc., James	241	N
Taylor Co., Halsey W.	222	N
Taylor Stiles & Co.	228	T
Tennant Co., G. H.	212	D
Tennessee Coal & Iron Div.	203	O
Texas Co., The	4th Cover	M
Textile Machine Works	80	L
Thermomat Co.	250	F
Toledo Scale Co.	200	K
Tompkins Bros. Co.	220	L
Torrington Co., The (Bearings)	227	O Q
Torrington Co., The (Needles)	185	L
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Turbo Machine Co.	5	L
Union Bag & Paper Corp.	25	P
U. S. Ring Traveler Co.	56	T
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Illustration By John Tenniel, From "Through The Looking-Glass," By Lewis Carroll

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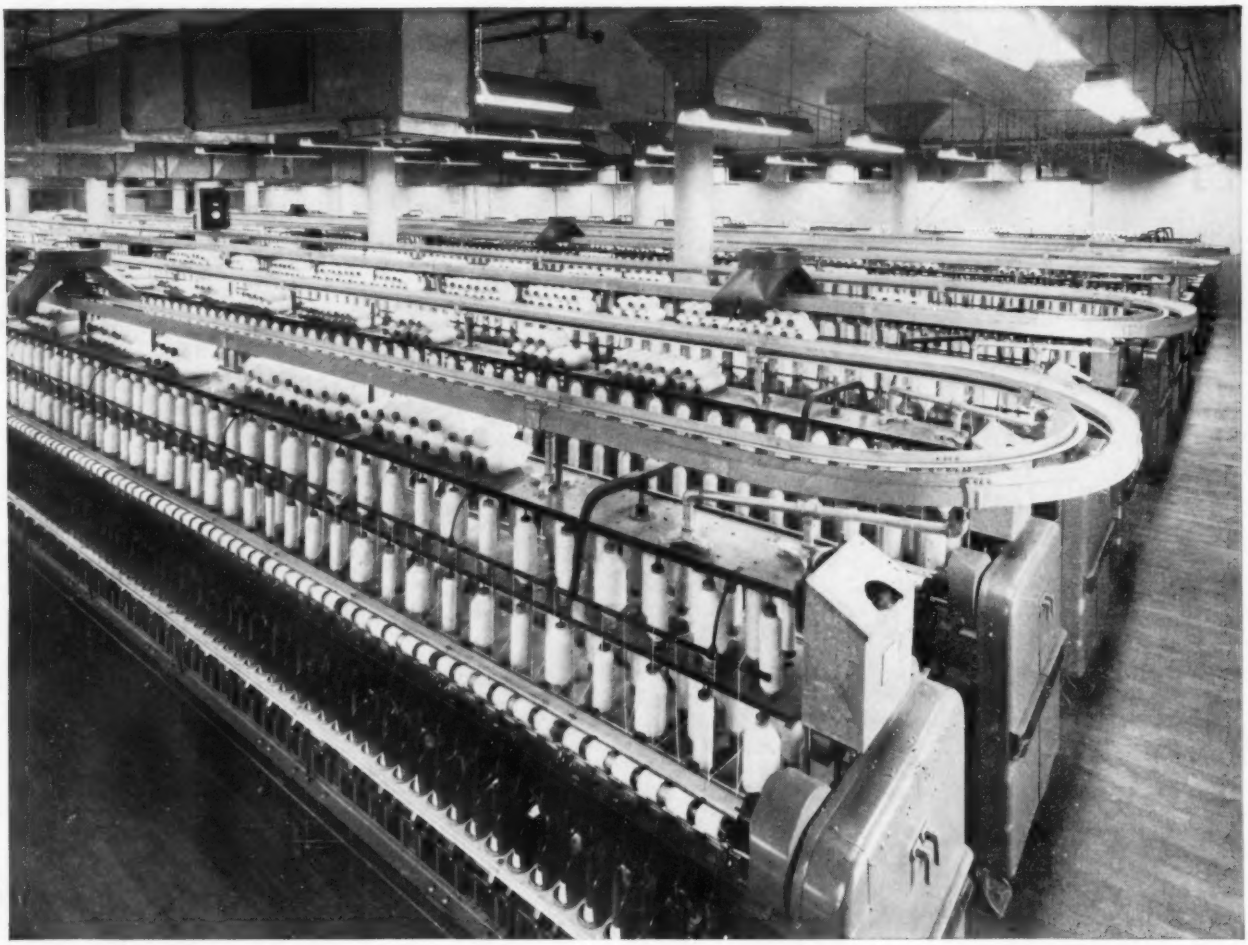

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